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ORIGINAL ARTICLES

THE OCCURRENCE OF BACILLUS FUSIFORMIS IN MEMBRANOUS AFFECTIONS OF THE THROAT—"VINCENT'S ANGINA" WITH REPORT OF 43 CASES*

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Vincent was not the first to call attention to the presence of fusiform bacilli and spirilla in connection with ulcerative and membranous conditions in the mouth; but his able work and extensive contribution to the literature on this subject has caused the name "Vincent's Angina" to come into general use.

The organisms were first described in cases of ulceromembranous angina by Rauchfus in 1893. Plaut in 1894 described the organisms in five cases of ulcerous angina. Vincent in 1896 described the fusiform bacilli and spirilla in cases of hospital gangrene and stated that the same organisms were found in certain anginas of an ulcerative type. Bernheim in 1897 reported thirty cases of angina and stomatitis in which the same organisms were present. Vincent in 1898 reported a further series of fourteen cases, and numerous later observers have described these organisms in connection with disease. They have been demonstrated in cases of mastoiditis. The same organisms have been found in noma. Schmorl found them in abscesses of the spleen, lung, and liver. Plaut has demonstrated the organisms in a tonsillar

abscess. They are quite constantly present in the pulp of decayed teeth and in varying numbers along the edge of the gums. Very similar organisms have been described in connection with other pathological processes.

PREVALENCE

Several writers have called attention to the prevalence of the disease in the throat associated with these organisms. But the general custom of studying the bacterio-pathology of throat affections from cultures only, has probably allowed a majority of these cases to go unrecognized. "Vincent's Angina," according to Vincent, constitutes 2% of all anginas, including diphtheria. Lublowitz found the organisms in six out of thirty-eight cases of ulcerative affections of the mouth. Beitze found them in five out of fifty-eight cases of suspected diphtheria. Rodella observed the organisms in about one-third of the two thousand cases of pseudo-membranous angina from which he made examinations. Edwards says "Vincent's Angina" occurs especially in children between the ages of six and ten, and in medical students and servants in anatomical laboratories. There is no special

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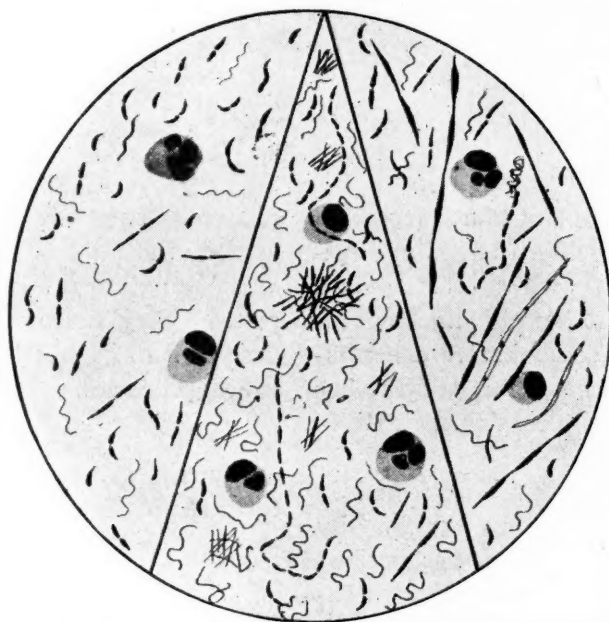
reason why medical students and dissecting room servants should be especially susceptible to "Vincent's Angina," and it is far more probable that because of environments the disease is more often diagnosed in these individuals than it is materially more prevalent.

ETIOLOGY

Our experience would indicate that the

BACTERIOLOGY

The spirilla and fusiform bacilli have been regarded by most writers as two distinct organisms and few have regarded them as different forms of the same organism. The latter view was apparently confirmed by the studies of Ruth Tunncliffe in 1906. The organism is extremely polymorphous and presents many intermediary forms between the typical spirillum and fusiform



Drawing from smear preparations from three different cases of "Vincent's Angina."
Stained with Unna's polychrome methylene-blue. (X-1,000).

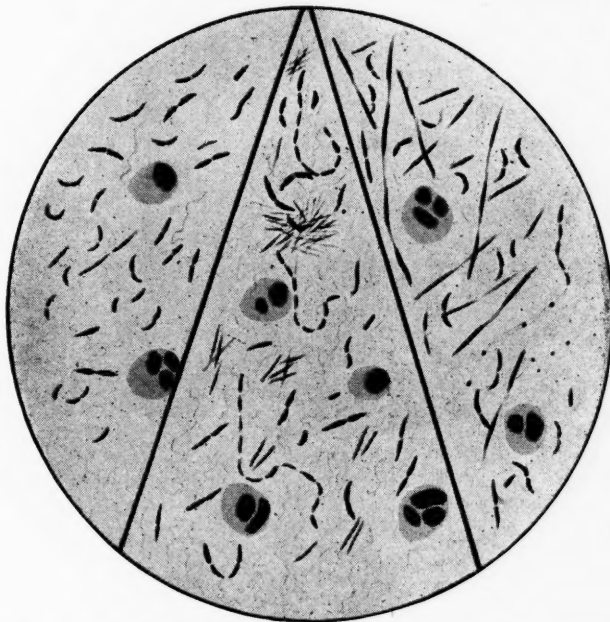
disease is most prevalent in young adults, irrespective of sex. Information obtained from the attending physicians, and personal observation in the cases studied, indicate that the disease most often occurs in individuals with lowered resistance, either from other infections or chronic disease of the throat. Defective teeth seem to be very generally associated and this would seem somewhat significant when we consider the association of these organisms with decayed teeth and the relation of the teeth to the tonsil.

bacillus. The proportion of the various forms varies greatly in different cases, the short curved fusiform bacilli predominating and the presence of a few spirilla being the most common. More rarely, irregular clumps of more slender and sharply pointed organisms are present and occasionally filaments of considerable length are found to be very numerous. The organism stains fairly well with the common stains and is usually said to stain best with carbol-fuchsin. I have found Unna's polychrome methylene-blue most satisfactory. The spirilla are very easily decolorized by Gram's

method, the bacilli give up their color less readily. Some writers have regarded the bacilli as Gram-positive, but the fusiform bacilli may be readily differentiated from diphtheria bacilli by Gram's method of staining.

The organism in pure culture is an obligate anærobe and no appreciable growth will occur on Loeffler serum under the usual conditions for diphtheria. Rarely

of Michigan State Board of Health. The material has been collected on sterile cotton swabs and transmitted either by special messenger or by mail. In all the cases referred to, separate examinations have been made from swabs and cultures from same on fresh Loeffler serum (supplied by Parke, Davis & Co.) In most of the cases which had been diagnosed as diphtheria on clinical grounds, two or more swabs



Drawing from smear preparations from three different cases of "Vincent's Angina."
Stained with Unna's polychrome methylene-blue. (X-1,000).

a slight growth of fusiform bacilli and occasionally a few spirilla will occur in mixed culture. Such growth is most abundant in the early hours of incubation and may be very confusing when culture less than ten hours old are examined. During this period, diphtheria bacilli, if present, would generally be of the solid type which resembles certain forms of *B. fusiformis* very closely.

The cases presented here have been gathered during the past year and have occurred among 265 cases of suspected diphtheria, examined at the laboratory

have been examined. In no case, however, examined for diagnosis has a negative finding been followed by a positive. B. Diphtheria have been recorded whenever present, regardless of the relative number; other organisms have not been recorded except when proportionately numerous, and then only the predominating organism is mentioned. Bacillus fusiformis has been recorded only when found by direct smear from the swab to be more numerous than any other species present.

Total number of cases examined for diagnosis

Total number of cases showing

B. Diphtheria 118

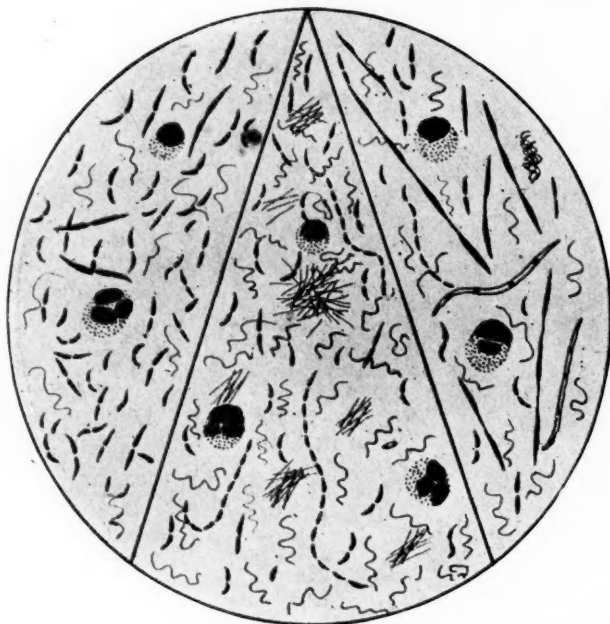
Total number of cases showing

B. Fusiformis 73

These 73 cases occurred in 33 males and 40 females. The lowest age given was two years and the highest fifty-five years, the average being 18 years. A membrane was described in all but four cases, involving both tonsils 38, one tonsil 31, and ex-

PATHOLOGY

The primary location of "Vincent's Angina" is usually on the tonsil. From this it may extend to any of the adjacent structures, but extension does not seem to be the rule. Pathologists have divided the affection into three periods, viz., the stage of congestion and edema followed by pseudomembranous formation and finally ulceration. These stages can usually not



Drawings from smear preparations from three different cases of "Vincent's Angina."
Stained with Unna's polychrome methylene-blue. (X-1,000).

tending to adjacent structures 15. The color of the membrane was given as gray or grayish 41, yellow 9, white 8, grayish yellow 5, greenish yellow 2, grayish green 1, and creamy 2. The highest temperature given was 103.3-5°F., the lowest, 98½°F., the average being about 100½°F. The clinical diagnosis was given as diphtheria 28, suspicious or questionable 20, tonsilitis 17, Vincent's angina 5, and scarlet fever 1. The cultural results showed, Streptococci 29, Staphylococci 20, B. Diphtheria 14, M. Catarrhalis 8, Pneumococci 1, Hofmann's bacilli 1.

be clearly distinguished and many of the cases seem to be abortive in the second or even in the first stage. The disease may be unilateral or bilateral. The membrane is generally grayish, but may be white, yellow or greenish in color. When removed it leaves an abraded surface which bleeds easily and in a few hours becomes again covered over. The submaxillary glands are swollen and firm in most of the severe cases, in mild cases these glands may present no change. Recovery generally takes place in a few days, but the more severe cases may persist for several weeks.

CASES IN WHICH B. FUSIFORMIS WAS FOUND TO PREDOMINATE IN DIRECT
SMEAR PREPARATION FROM THE SWAB

NO.	AGE	SEX	DAY OF DISEASE	MEMBRANE			COLOR	TEMPERATURE	CLINICAL DIAGNOSIS	CULTURAL RESULTS
				One Tonsil	Both Tonsils	Extending				
1	7	Female	3rd	Yes			White	99.5°	Tonsillitis	B. Diphtheria
2	17	Male	2nd						Suspicious	Staphylococci
3	20	Female	3rd		Yes		Gray	99.6°	Fol. Tonsillitis	B. Diphtheria
4	22	Male	2nd		Yes		Gray	99.4°	Questionable	B. Diphtheria
5	9	Male	1st		Yes	Pillars	Gray	100°	Diphtheria	Streptococci
6	20	Female	2nd			None		101.4°		Staphylococci
7	2½	Male	1st		Yes		Gray		Uncertain	Streptococci
8	22	Female	2nd	Yes			Gray	101°	Questionable	Staphylococci
9	14	Female	3rd		Yes		Yellow	100.5°	Tonsillitis	B. Diphtheria
10	19	Female	3rd		Yes		Yellow	102°	Diphtheria	Staphylococci
11	30	Female	3rd		Yes		White	102.5°	Tonsillitis	Streptococci
12	21	Female	8th	Yes			Gray	100°	Diphtheria	Streptococci
13	35	Male	1st	Yes			Gray	100°	Diphtheria	Streptococci
14	6	Male	5th	Yes			White	98°	Diphtheria	B. Diphtheria
15	6	Male	1st	Yes			Gray	99°	Suspicious	Streptococci
16	55	Female	1st		Yes		Grayish Yellow	99.5°	Diphtheria	Staphylococci
17	9	Female	2nd		Yes		Gray	101°		Staphylococci
18	15	Female	2nd		Yes		Dirty Yellow	99°	Diphtheria	Streptococci
19	38	Male	1st		Yes		Grayish	100°	Suspicious	Streptococci
20	2	Female	4th		Yes	Larynx	Yellow	101°	Croup	Staphylococci
21	12	Female	2nd	Yes			Grayish	101°	Diphtheria	M. Catarrhalis
22	18	Female	3rd		Yes		Gray	100°	Diphtheria	Staphylococci
23	20	Female	2nd		Yes		Grayish	99°	Diphtheria	Staphylococci
24	11	Male	2nd	Yes			White	101°	Reserved	B. Diphtheria
25	18	Male	1st		Yes		Grayish	102°	Diphtheria	M. Catarrhalis
26	30	Female	3rd		Yes		Gray	102°	Scarlet Fever	Staphylococci
27	20	Male	2nd		Yes	Pharynx	Grayish	100°	Fol. Tonsillitis	Streptococci
28	21	Male	1st			None		102.2°	Suspicious	Staphylococci
29	15	Female	3rd	Yes		Arch	Gray	99°	Diphtheria	Staphylococci
30	8	Male	2nd	Yes			Gray	102°	Diphtheria	Streptococci
31	12	Female	1st		Yes		White	103.6°	?	M. Catarrhalis
32	18	Male	2nd	Yes			Gray	98.5°	Tonsillitis	M. Catarrhalis
33	17	Male	1st	Yes			Gray	100°	Doubtful	B. Diphtheria
34	8	Female	2nd	Yes			Grayish	100.5°	Tonsillitis	B. Diphtheria
35	30	Male	3rd	Yes		Pharynx	Gray	102°	Doubtful	Staphylococci
36	12	Male	1st			None		99°	Tonsillitis	Streptococci
37	10	Female	3rd	Yes			Grayish	100.5°	Suspicious	B. Diphtheria
38	8	Female	2nd	Yes			Grayish	101°	Suspicious	B. Diphtheria
39	10	Male	2nd		Yes		White	101.5°	?	M. Catarrhalis
40	5	Male	1st	Yes			Gray	100°	Diphtheria	Staphylococci
41	5	Male	2nd	Yes		Post Pillar & Arch	Gray	98.6°	Diphtheria	Staphylococci
42	18	Female	8th		Yes		Yellow Gray	102°	Diphtheria	Staphylococci
43	2	Male	2nd	Yes				105°	Suspicious	Pneumococci
44	15	Female	3rd		Yes		Gray	100°	Diphtheria	Staphylococci
45	45	Female	2nd	Yes			Dirty Yellow	99°	Tonsillitis	Streptococci
46	22	Female	2nd	Yes			Yellow Green	101°	Fol. Tonsillitis	Streptococci
47	30	Male	3rd		Yes		Dirty Yellow	102°	Tonsillitis	Staphylococci
48	19	Female	4th		Yes	Post Pillars	Yellow Green	101°	Diphtheria	Streptococci
49	16	Male	2nd		Yes		Gray	100°	Diphtheria	Streptococci
50	5	Male	2nd	Yes			Grayish	102.6°	Diphtheria	Streptococci
51	24	Female	3rd		Yes		Gray	99°	Angina	M. Catarrhalis
52	21	Male	3rd		Yes		White	99°	Tonsillitis	M. Catarrhalis
53	35	Male	2nd	Yes		Post Pillar	Grayish	99.5°	Vincent's Angina	Streptococci
54	16	Male	2nd		Yes	Post Pillar	Grayish Yell'w	99°	Suspicious	Streptococci
55	32	Female	2nd		Yes	Pillars, Arch	Grayish Green	98.5°	Vincent's Angina	Streptococci
56	17	Female	1st		Yes		Creamy	102.5°	Vincent's Angina	B. Diphtheria
57	26	Female	2nd	Yes			Gray	100°	Fol. Tonsillitis	B. Diphtheria
58	13	Female	1st		Yes		Gray	102°	Suspicious	Streptococci
59	19	Male	1st	Yes		Post Pillar	Grayish	102°	?	B. Diphtheria
60	37	Female	2nd		Yes		Grayish Yell'w	101°	Tonsillitis	Streptococci
61	20	Female	2nd		Yes		Gray	101°	Diphtheria	Streptococci
62	18	Female	2nd		Yes		Gray	100.5°	Suspicious	B. Diphtheria
63	40	Female	1st		Yes		Yellowish	102°	Diphtheria	Streptococci
64	26	Female	1st	Yes			Gray	99.4°	Tonsillitis	Streptococci
65	14	Female	1st		Yes		Creamy	102.5°	Diphtheria	Streptococci
66	6	Male	2nd	Yes			Gray		Diphtheria	Streptococci
67	10	Female	2nd			Back of Each Tonsil	White		Diphtheria	B. Hofmanni
68	25	Male	1st	Yes		Post Pillar and Arch	Grayish Yell'w	101°	Vincent's Angina	Streptococci
69	35	Female	2nd	Yes			Yellow	Normal	Tonsillitis	M. Catarrhalis
70	30	Female	2nd	Yes			Gray	100.2°	Tonsillitis	Streptococci
71	32	Male	1st	Yes		post pillar	Gray	99.5°	Questionable	Streptococci
72	5	Male	4th		Yes		Yellowish	102°	Diphtheria	Staphylococci
73	22	Male	1st		Yes	Post Pillars	Gray		Diphtheria	Staphylococci

CASES WHICH WERE DIAGNOSED AS DIPHTHERIA CLINICALLY, BUT GAVE
NO BACTERIOLOGICAL EVIDENCE OF DIPHTHERITIC INFECTION

NO.	AGE	SEX	DAY OF DISEASE	MEMBRANE			COLOR	TEMPERATURE	BACTERIA PREDOMINATING	
				One Tonsil	Both Tonsils	Extending			Swab	Culture
1	9	Male	2nd		Yes	Pillars	Gray	100°	B. Fusiformis	Streptococci
2	19	Female	3rd		Yes		Yellow	102°	B. Fusiformis	Staphylococci
3	21	Female	8th	Yes			Gray	100°	B. Fusiformis	Streptococci
4	3	Female	2nd	Yes			Yellowish	103°	Staphylococci	Staphylococci
5	5	Male	1st	Yes		Pillar and Arch	Gray	100°	B. Fusiformis	Staphylococci
6	12	Male	3rd			No Membrane		102°	Pneumococci	Pneumococci
7	13	Female	1st			Posterior Pharynx	Yellow	99°	M. Catarrhalis	B. Muc. Caps.
8	5	Male	2nd	Yes		Post Pillar & Arch	Gray	98.6°	B. Fusiformis	Staphylococci
9	35	Male	1st	Yes			Gray	100°	B. Fusiformis	Streptococci
10	55	Female	1st		Yes		Grayish Yell'w	99.5°	B. Fusiformis	Staphylococci
11	6	Male	1st			Throat	White	101°	M. Catarrhalis	M. Catarrhalis
12	15	Female	2nd		Yes		Dirty Yellow	99°	B. Fusiformis	Streptococci
13	12	Female	2nd	Yes			Grayish	101°	B. Fusiformis	M. Catarrhalis
14	18	Female	3rd		Yes		Gray	100°	B. Fusiformis	Staphylococci
15	20	Female	2nd		Yes		Grayish	99°	B. Fusiformis	Staphylococci
16	12	Female	1st		No Membrane			101°	M. Catarrhalis	M. Catarrhalis
17	18	Male	1st		Yes		Grayish	102°	B. Fusiformis	M. Catarrhalis
18	15	Female	3rd	Yes		Arch	Gray	99°	B. Fusiformis	Staphylococci
19	24	Female	2nd	Yes			Grayish	99°	Leptothrix Bucc'lis	Staphylococci
20	18	Female	8th		Yes		Yellowish Gray	102°	B. Fusiformis	Staphylococci
21	10	Male	2nd	Yes			Yellowish White	101°	Sacch. Albicans	Sacch. Albicans
22	8	Male	2nd	Yes			Gray	102°	B. Fusiformis	Streptococci
23	20	Female	2nd		Yes		Grayish	99°	B. Fusiformis	Staphylococci
24	15	Female	3rd		Yes		Gray	100°	B. Fusiformis	Staphylococci
25	16	Male	2nd		Yes		Gray	100°	B. Fusiformis	Streptococci
26	5	Male	2nd	Yes			Grayish White	102.4°	B. Fusiformis	Streptococci
27	19	Female	4th		Yes	Arch	Yellowish Gr'n	101°	B. Fusiformis	Streptococci
28	10	Female	2nd			Back of each Tonsil	White		B. Fusiformis	B. Hofmanni
29	6	Male	2nd	Yes			Gray		B. Fusiformis	Streptococci
30	14	Female	1st		Yes		Creamy	102.8°	B. Fusiformis	Streptococci
31	40	Female	1st		Yes		Yellowish	102°	B. Fusiformis	Streptococci
32	20	Female	2nd		Yes		Gray	101°	B. Fusiformis	Streptococci
33	22	Male	1st		Yes	Post Pillars	Gray		B. Fusiformis	Staphylococci
34	5	Male	4th		Yes		Yellowish	102°	B. Fusiformis	Staphylococci
35	29	Female	1st		Yes		White	101°	Streptococci	Streptococci

SYMPTOMATOLOGY

The symptoms are interesting in comparison with diphtheria. In the entire series of 265 cases, diphtheria was diagnosed on clinical grounds in 99. The bacteriological examination of these 99 cases showed

B. Diphtheria present 64

B. Diphtheria absent 35

This gives a percentage of error in the clinical diagnosis of diphtheria of 35.3. It is worthy of note that the percentage error in the clinical diagnosis of diphtheria was found at the laboratory of Massachusetts State Board of Health to be 38.4 for 4,113 cases, and out of 30,000 certified cases of clinical diphtheria collected from the literature by Dr. G. S. Graham-Smith, the percentage error in the clinical diagnosis was found to be 29. This would indicate that our figures show a fair average

A review of the laboratory results in these 35 cases of pseudo-diphtheria shows a predominance of bacteria as follows:

	SWAB CULTURE	
B. Fusiformis	27	0
M. Catarrhalis	3	4
Staphylococci	1	14
Streptococci	1	13
Pneumococci	1	1
Saccharomyces Albicans	1	1
Leptothrix Buccalis	1	0
B. Mucosus Capsulatus	0	1
B. of Hofmann	0	1

Among the 73 cases showing B. Fusiformis, diphtheria was diagnosed clinically 28 times. The bacteriological examination of these 28 cases showed

B. Diphtheria present 1

B. Diphtheria absent 27

This gives a percentage error in the clinical

diagnosis of diphtheria in the presence of *B. fusiformis* of 96.4, which surely ought to impress the similarity of the two diseases. The constitutional symptoms are usually slight. The temperature shows very little elevation. The breath is generally fetid. There is a burning sensation at the site of the lesion and considerable pain on swallowing. There is nothing characteristic about the pseudo-membrane which will differentiate it from the true diphtheritic membrane and the cases may be often justly designated as pseudo-diphtheria.

DIAGNOSIS

The diagnosis is made by finding the characteristic bacilli and spirilli in smears prepared from the exudate. As these organisms may be found in small number, with persistent search, in the majority of throats examined, the diagnosis is hardly justifiable unless they constitute a fairly large proportion of the bacteria present. Diphtheria bacilli are frequently associated with the fusiform bacilli and should always be properly excluded.

It is not always easy to draw satisfactory conclusions as to what organism is the chief causative factor in a given membrane. Membranous inflammation caused by *B. Diphtheria*, *B. Fusiformis*, *B. Coli*, *B. Influenza*, *Streptococci*, *Staphylococci*, *Pneumococci*, *Leptothrix Buccalis* and *Sacch. Albicans* have been observed. Any of these organisms, however, may be present in the throat sometimes for prolonged periods without causing such inflammation. When dealing with these organisms it has become a custom to regard the predominating species as the essential etiologic factor. If a throat affection is associated with Klebs-Loeffler bacilli, the case is usually regarded as one of diphtheria, regardless of the relative number of bacilli present. It is quite probable, however, in some of the cases, that the disease is

essentially due to other organisms and occurring in diphtheria bacilli carriers. In this series there were three typical cases of "Vincent's Angina" following diphtheria before the Klebs-Loeffler bacilli had disappeared, occurring three weeks, one month and four months respectively after recovery from the true diphtheritic attack. The mere presence of diphtheria bacilli makes the condition important, whether or not these organisms are the essential cause of the existing disease. For this reason, special measures in the bacteriological examination of diseases of the throat have been directed toward the identification of these organisms. Most of the information on the bacterio-pathology of throat affections in the past has been obtained from so-called bedside cultures, and it should be remembered that the culture always represents the organisms present to which the cultural conditions are most favorable, irrespective of their relation to the existing disease, and there are some important pathogenic organisms which do not develop in culture under the usual conditions for diphtheria.

The cultural results in this series of cases indicate that *Streptococci* and *Staphylococci* are the most usual in cases of "Vincent's Angina." It should be further noted that in over three-fourths of the cases of pseudo-diphtheria, the direct smears from the membrane showed a predominance of *B. Fusiformis*. This might lead us to re-consider the literature on membranous affections of the throat due to *Streptococci* and *Staphylococci*. Most of such findings recorded have been based upon cultural results, and whenever such be the case, "Vincent's Angina" has not been excluded.

CONTAGION

Contagion in connection with this disease has been reported by Vincent, Dopfer,

Bernard, Auger, and others. During the winter of '08-9 a number of cases occurred at the Home for the Feeble Minded at Lapeer, Michigan. Many of these were regarded as diphtheria, but eight swabs examined at the state laboratory all showed an absence of diphtheria bacilli and a large number of *B. Fusiformis*. Two small epidemics have occurred during the past year at the State Industrial School at Lansing, there being on each occasion about a dozen more or less severe cases. Three or four of the most marked among these have been examined each time to exclude diphtheria. Fusiform bacilli were in each swab examined found to be numerous. Two or three cases occurring simultaneously in the same family have been occasionally observed and recently four cases occurred on the same day among the employees in one of the departments of the State Board of Health. I can, however, not consider any of the above mentioned incidents evidence of contagion. The cases have not seemingly followed each other, but rather occurred in groups in persons who have been influenced by the same or similar conditions.

PROGNOSIS

The prognosis is generally good, none of the cases in our series have proven fatal. It is stated that noma of the face may follow. Noma, however, is a rare disease, and "Vincent's Angina" must be regarded as very common. There is in some of the cases a marked tendency to recur.

TREATMENT

Potassium Chlorate internally has been regarded as specific. Various antiseptic solutions have been used locally, most important among which are Tr. Iodine, Logul's solution, peroxide of hydrogen, and silver nitrate in 2-5% solution. To prevent recurrence, decayed teeth should be

properly cared for, hypertrophied tonsils and other diseased tissue in the throat should be given appropriate treatment. Associated disease should always receive early and proper attention. When associated with diphtheria, antidiphtheritic therapy and prophylaxis is indicated. Anti-toxin treatment can only be neglected, where diphtheria bacilli are present, when it is definitely known that the patient is a diphtheria bacilli carrier. In two of the cases where *B. diphtheria* and *B. Fusiformis* were associated, the physicians have reported a prompt disappearance of the membrane following anti-toxin. In one case, there was no apparent effect following 5,000 units, and the membrane persisted for about a week after the injection. No anti-toxin was used in any of the three cases following diphtheria, but prompt recovery followed in a few days. One severe case of "Vincent's Angina" was given 6,000 units of anti-toxin because of its marked clinical resemblance to diphtheria, although Klebs-Loeffler bacilli had been repeatedly found absent. This treatment had no apparent effect upon the disease and the membrane, which involved both tonsils and posterior pillars, persisted for about two weeks and recurred several times during the following months.

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DISCUSSION

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So insidiously do diseases extraneous to the tonsil creep in through that organ and so definitely may its condition impair the general health of childhood, that a clear knowledge of its physiology and anatomy together with the disease, and pathology of the tonsils and tonsillar rings is imperative in the treatment of the disorders of children.

Vincent's Angina is not a disease of such minor importance as might appear, for it is allied with some serious conditions (Vincent considering it positively grave in young children), and it should, for several reasons, be carefully considered.

I. It is not rare, but an unrecognized disease and when looked for in mouth and pharynx affections is frequently found. Dr. Koplik, of New York, who has for years so clearly differentiated the varieties of Angina, told me that the two organisms, bacillus fusiformis and the spirochete were not infrequent in his observations, and when looked for in the mouths of infants and children, in the wards of Mt. Sinai Hospital, were always found in gangrenous processes of the mouth.

In 1903 Escherich showed that in the large hospitals of New York, London, Paris, and Berlin in only 60% of the diphtheroid diseases were the clinical aspects caused by the Klebs-

Loeffler bacillus, and the various anginas held the other 40%. The diagnosis of these cases rests upon the intelligent, painstaking findings of a bacteriologist. Many cases of Vincent's angina are passed by the general practitioner as diphtheria, tonsillitis, or syphilis, and the diagnosis from the clinical picture in its similarity to other infections is a vivid illustration of the inability to diagnosticate throat affections without the findings of scientific research. Now the more we know the more we are convinced that it is impossible to differentiate diphtheria and tonsillitis without the aid of a laboratory. About one-third of the cases of virulent diphtheria present a simple angina clinically, the Klebs-Loeffler bacillus being found deep in the lacunar plugs.

It is just here that the inefficiency of the bacteriological department of our health boards is felt and here arises a definite inquiry as to its limitations and the value of the field of the city bacteriologist in the larger cities and in the smaller ones. Many times the work is inadequate and not in keeping with that of the high grade medical community. In mouth and throat examinations the organism which is looked for is the Klebs-Loeffler. In the larger cities those looking for this organism become experts, skilled in the detection or suspicion of smears with but little suggestion of diphtheria. It is not the rule, however, for the bacteriologist to be in touch with the clinical findings or the history of the case and only an examination from one smear is the custom.

Now the superficial similarity, clinically, of Vincent's angina and diphtheria is great in the early stages, and frequently careful examinations disclose the former and not the latter if Vincent's angina is looked for. It is in just these cases which pass for diphtheria and which are responsible for the so-called inefficiency of the anti-toxin treatment.

In the smaller cities the want of interest or intelligence of the general practitioner in this work is apparent. Only a fractional part of the medical profession avail themselves of the city bacteriological department, and some of these presume to hold the one examination of the bacteriologist responsible for the diagnosis even though the patient be well-to-do. Several examinations should be made and in private laboratories with consultant's fee, where it can be ably met by the patient. But a paltry salary is paid frequently to the city bacteriologist who is used as a consultant rather than a city safe-

guard. These conditions are not an incentive to such investigative work as would be of benefit to the community, and sometimes it is only the personal interest of the bacteriologist obtaining from the material all that there is to learn that such close work obtains as results in obscure cases of diphtheria being disclosed and Vincent's Angina being differentiated from syphilis and diphtheria.

The fusiform bacillus of Vincent's Angina may be mistaken for the Klebs-Loeffler; both infections may occur simultaneously; syphilis or some other virulent organism may be present; so that more than positive or negative findings of the diphtheria organisms from the bacteriological department of a city would be in keeping with high grade work of the medical profession.

II. Vincent's Angina is a tenacious disease, hard to combat and may be fatal. It is one and the same process as noma, ulcerating stomatitis and gangrenous stomatitis, clinically, anatomically, and bacteriologically. It is generally a typical local stomatitis.

Its duration may be several months, during which time the patient loses ground generally; it is a serious and not a harmless disease.

There have occurred as complications, necrosis of the maxilla; destruction of tonsils and adjoining parts as the uvula; necrosis of the pharynx; nephritis; peripheral neuritis of the lower extremities; swollen joints and axillary nodes; albuminuria; endocarditis; mastoiditis; brain abscess; peribuccal abscess.

As to its communicability, that it is somewhat so is probable. Koplik, who almost always has cases in his ward, says that he has not found it communicable, that the organisms are putrefactive saprophytes, doing no damage beyond their host.

A. Baron of Dresden considers a contagiousness, but not of great danger, as in only four out of thirty-five cases has he shown it communicable.

Todd of Minneapolis reports an epidemic in an insane asylum and the contraction of the disease by the pathologist, who had examined the throats for several years. This pathologist has harbored the organism and has had acute severe exacerbations.

Buhleg of Northwestern Medical School, Chicago, reports seven cases among two different associated groups of medical students, suggesting the contagiousness of it. These cases had an incubation period of about seven or eight days. Buhleg suggests the means of contagion may have been the purse strings of the common

tobacco bag. The bag being continually passed among acquaintances, each closing with the teeth the purse strings.

Vincent and Costa suggest communicability within limits.

Inasmuch as the two organisms are found about the gums and teeth of healthy individuals, and have been known for a long time as saprophytes in normal mouths, though they are not found in the mouths of infants without teeth according to Eschinger's broad experience, some other factor presents in the consideration of these two dissimilar organisms as a pathological entity. This factor is the lessened resistance of the tonsils, tonsillar ring and buccal mucous membrane.

In order to appreciate this in the mode of invasion and in the lesions of Vincent's Angina and other anginas, one must know both the normal and pathological anatomy of this region. Some practitioners do not concern themselves with the anatomy, physiology, chemistry and the biological process of the cells and tissues entering into the areas involved in the diseases for which they are treating the patient; they deem such knowledge "too scientific," not being cognizant of the fact that it is practical and called for.

Now it is generally granted, and proved in some of the infections, that the disease finds the portal of entry by way of the mucous membrane of the mouth and tonsillar ring. The locality therefore is worth consideration. For in inflammations of the tonsils the infections gain access through some lesion of the epithelial lining of the crypts, but the type and virulence of the invading organisms, as determined by laboratory findings, determine the mode of treatment rather than that the tonsillar inflammation determines it.

The normal tonsils according to Boswick and others $\frac{3}{4}$ in. x $\frac{3}{4}$ in. should not be seen, and should atrophy by the age of 12 years. They are situated each in a triangular fossa bounded externally by the superior constrictor muscle; anteriorly by the anterior faucial pillar containing the palato-glossus muscle; and posteriorly by the posterior faucial pillar containing the palato-pharyngeal. At every act of deglutition the tonsils are compressed and unless obstructed (commonly this occurs in the upper portion) the crypts are emptied.

The tonsils are situated as if they had been lymphoid bodies, forcing themselves between the epithelial layer and the tunica propria of

the faucial mucous membrane, by which the epithelium lines the internal surface and invaginates the crypts; while the membrana propria layer, as a tough membrane continuous with the faucial mucosa, forms a distinct capsule. This capsule contains fibrous, elastic and muscle tissues and, with the crypts, differentiates the tonsils from the surrounding lymphoid tissue. Merging into this capsule are the trabeculae which divide the tonsils into lobes. There are two membranes covering parts of the tonsils which enter as factors into their lessened resistance. The plica tonsilaris covers the lower third, extending from the anterior to the posterior pillar, while the supra tonsillar membrane covers the upper portion to two years of age, the latter especially sometimes so caps the crypts emptying into the supra tonsillar fossa as to prevent the caseous, decomposing material from finding its way out.

The crypts, eighteen to twenty in number, extending entirely through the tonsils, are lined by the epithelial cells which have a distinct protective property.

The arrangement of these crypts and tonsillar membranes, and the condition of these cells are factors to be considered in the prevention of a number of infectious diseases. The extra-capsular lymphatic bodies sometimes take on the function of the tonsils after their removal. The lymphatics are important as furnishing the path of infection especially of tuberculosis.

The afferents are branches from those of the tongue and nose. The efferent finding their origin in and not merely passing through the tonsils as in other lymphoid tissue empty into the cervical chains and through those about the external jugular into the thoracic duct.

Many anastomoses prevent a direct current and account for the seeming returning line of infection sometimes noted.

Tuberculosis is proven to find a portal of entry through the tonsils, 26% of removed tonsils showing bacteria or focal lesions; the peri-tonsillar glands showing infection in two to four percent, and through the lymphatics the apex of the lungs and the pleura are vulnerable.

Jacobi, by a forty-year observation, considers the anatomy and lymphatic arrangement an important factor in the non-glandular infection in cases of angina, etc., when the membrane is confined to the tonsil.

However, the tonsils are shown by recent research work to be the portals of entry of many diseases and primarily inflammatory in tuber-

culosis, rheumatism, erisypelas, exanthematous diseases, endocarditis, nephritis and others.

As to the function of the tonsils, in spite of excellent work by admirable men it is still a matter of opinion. Best evidence suggests a lympho-genetic power, a phagocytic action, and a strong resisting medium to pathogenic matter; in other words, protective.

A hypertrophied tonsil, from whatever cause, though commonly from repeated inflammations, loses this protection. Goodale has shown that the hypertrophied tonsils readily absorb foreign material, bacteria as well as inert matter.

Stoehr considers that the protective function lies in the germ-centers of the nodules, where lymphoid tissues are changed into lymphocytes, these being migratory and phagocytic. At all events the resistance of the normal epithelium and tonsillar tissue is interesting and important; for if a normal tone is retained, not only will Vincent's angina, diphtheria, and tonsillitis be resisted, but likewise those many diseases extraneous to the tonsils, but which here find their portal of entry.

Jonathan Wright has presented valuable observations on the resistance of the epithelium of the normal tonsil. The two modes of resistance of the epithelial cells he suggests as, (1) A bio-mechanical one, which may decrease with the changes in the protoplasm, thus decreasing the surface tension. (2) A bio-chemical one, stimulated by the toxins of the bacteria, by which a resisting ferment, as in Metchnikoff's leucocytes, produces an equilibrium between immunity and infection.

And so the general economy of the patient is menaced and local conditions such as Vincent's angina may occur, when the tonsils become abnormal or hypertrophied. Escherich in the *Jahrbuch für kinder-heile* for 1905 reports from University Children's Clinic Leipsic, cases of Vincent's angina of which 17 were membranous and 5 ulcerous.

Three ulcero-stomatitis, typical

One gangrenous stomatitis

One gingivitis

Eleven with diphtheria also

Twenty showed both fusiform bacilli and spirochetes

Four showed only fusiform bacilli

Thirteen of the membranes showed spirochetes.

Escherich considers that the fusiform bacillus penetrates the living tissue and gives the charac-

ter to the disease while the spirochetes are spongers and not causative.

Other authorities, however, consider the spirochete the factor in lessening the resistance of the tissue and making a way thereby for the tusitorm bacillus.

Emil Mayer considers the peculiar fruity odor due to the spirochetes.

In work done by A. Baron, Dresden, from 1899 to 1907, in the Foundling Hospital, 239 of so-called tonsillitis cases were studied; twenty-one showed diphtheria, 123 ulcero-membranous Vincent's angina, all presenting the two organisms while at the same time 85 had catarrh and 67 had ulcero-stomatitis, and these cases which showed the fusiform bacilli more abundant presented the ulcero-membranous form, both organisms being most numerous the first days.

Eleven of these 123 had throat and buccal diseases.

Eight had repeated attacks of Vincent's angina. Baron finds the angina in infants without teeth, but finds no involvement of the lymphatics.

His experience has been that Vincent's angina begins as other anginas but with absence of complaint.

Cases:

I. Bernheim reports one of his cases cured by only one operation.

Personal history: Chronic hypertrophy of faucial tonsil.

P. I. Cough and membrane presenting as white patches for two months.

Treatment: Silver nitrate and cauterizing—Worse.

Case acute for three weeks and both organisms very prominent.

Operation—cure.

II. Yates of New York presents an interesting case in a girl of twelve. Complaint, earache, headache, tenderness back of ear, discharge through meatus.

Incision and removal of a dram and a half of foul smelling pus. Mastoid opened, cortex gone, necrosis of tissue; exposure of sinus and dura of middle fossa with yellowish membrane. Microscope showed Vincent's angina organisms.

He reports that in the laboratory of the New York Eye and Ear Infirmary the organisms of Vincent's angina were found in pus from middle ear, mastoid and old brain abscess, together with other organisms—not alone.

III. Rogers of Philadelphia reports an inter-

esting case during pregnancy and puerperium. Fatal.

E. B., age 20.—P. I. Nov. 11, premature labor. Tonsilitis, severe until Nov. 16. White membrane on tonsils, under tongue and on buccal surface.

Nov. 18. Bacilli and spirochetes abundant.

Nov. 18. Twenty-one Klebs-Loeffler negative, but patient had been moved to diphtheria ward in interval after Nov. 11.

Nov. 21. Klebs-Loeffler found.

Nov. 19. Gangrene, necrosis and loose teeth.

Nov. 22. Septic pneumonia.

This was a case of virulent Vincent's angina, and diphtheria was contracted secondarily on removal to contagious diphtheria ward.

Autopsy: Gangrene of tonsils, uvula, and under tongue. Lungs, right and left, presented Klebs-Loeffler. Left lung apex tuberculosis. There was pulmonary tuberculosis, gangrene of lung, nephritis, endocarditis and cloudy swelling of liver and spleen.

IV. A. Baron records a case showing similarity of Vincent's angina and diphtheria.

Patient a girl of fourteen. Personal history, lacunar tonsilitis.

P. I. Lacunar tonsilitis followed by pain in throat, chills and on first day a white exudate on right tonsil.

Temperature, 103; exudate neither spreading nor melting; no Klebs-Loeffler, but numerous spirochetes and fusiform bacilli in pure culture.

Exudate remained three weeks; circulation disturbed, dizziness, irregular heart, small pulse; pain in thorax and symptoms of myocarditis, gallop rhythm and dilated heart, swollen liver.

For three months patient was in bed with pulse 160 on exertion. After this time general health became better, but faucial paralysis, in-

ability to swallow and indistinct speech developed. There was also difficulty in walking and movement of legs and arms.

After two months' treatment with electricity and baths the patient became entirely well, the arms and legs being the last to regain normal tone. Heart normal.

This case was so similar to diphtheria that it would have been so diagnostic unless proved bacteriologically otherwise. Similar cases are reported by Reiche of Hamburg.

BACTERIOLOGICAL EXAMINATION

The swabs should be pressed into the mass of exudate. The smears must be examined as the spirochetes are anerobic and hard to cultivate; the fusiform bacillus being carried culturally through several generations. Both organisms are motile, and can be examined in hanging drops. The flagellæ have been observed by A. Baron.

TREATMENT

Vincent uses iodine swabbing.

Emil Mayer uses Lugol's solution.

Others use silver nitrate, trichloroacetic acid, A. Baron uses hydrogen peroxide followed by ormorol.

The use of potassium chlorate which is frequently employed as a routine treatment is not indicated and is useless in the experience of those best fitted to judge.

The treatment should concern itself with prophylaxis by paying attention to the hygienic condition of the patient's mouth, especially of children, for the disease is as frequently present in the well nourished as in the illy fed.

In time vaccine therapy combined with local treatment and general hygiene may be the method of taking care of Vincent's angina.

SURGICAL SUGGESTIONS

If a foreign body impacted in the auditory canal (especially if symptoms suggest that it has entered the middle ear) resists safe efforts at removal, administer narcosis, turn the ear lobe forward and open into the canal by a free incision from behind. This procedure, which is simple and leaves only invisible scars, is a very old one, but it is often forgotten.—*American Journal of Surgery*.

When seeking the cause of an obscure or indefinite abdominal pain; and especially of a pain in the loin, making a careful microscopic examination of the centrifugalized urine. Renal calculi sometimes cause only mild, irregular pains, and the finding of a few red blood cells in the urine may be the first clue to their presence.—*American Journal of Surgery*.

TRANSITORY INSANITY AND ITS ABUSES.*

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This paper has more especially to do with transitory insanity as pleaded, as a warrant for exemption from responsibility for crime.

To the astute criminal lawyer eager to divest his accused client of every entangling thread of responsibility, this particular variety of insanity possesses a far more fascinating interest than it can possibly have for the thoughtful physician who knows its rarity, its common improbability and the questionable purposes which it has not seldom served.

Few facts concerning mental disease, are better established than this, that insanity is seldom or never an affair of the moment, seldom the phenomenon which the lurid lawyer loves to paint, finding its expression in flushed face, "bulging eyes" and contorted features which so impress susceptible laymen that they make willing witnesses to uphold this hobgoblin of their vivid imaginations. It has been well said: "It is the rule that insanity is not a sudden instantaneous change. If it has developed suddenly or instantaneously, as is sometimes stated, there may have been omissions to note the import of its threatened approach, or the whole history has been purposely withheld. The only rule upon which we can act or come to a conclusion in these cases is that there is always a developmental stage of insanity as in our clinical experience in the observation of ordinary diseases."[†]

Not only is insanity rare as an affair of sudden origin, but it is still more rare as an affair of fleeting existence. Its

bona fide nature, is very justly and fairly, then, open to suspicion when it is pleaded as a defense for crime and especially so when of that attractive variety, the evanescent existence of which is only of sufficient length to just cover the criminal act.

Such alleged varieties are, let me assure you, not at all uncommon, indeed they are quite the rule, especially in cases of murder, where there is room for any possibility of doubt as to the guilt of the accused. An excuse which will conveniently cover the crime but which has promptly left its perpetrator as sane as before its commission is naturally a favorite defense. Hence have arisen many common ideas concerning irresistible impulses, "dementia Americana," that insanity which is born only to be gone, emotional insanity, transitory frenzy, furibund mania; and even epileptic insanity has been called upon to cover a multitude of crimes and to stand in the breach, even in the absence of any epileptic history whatever. "It must not be forgotten," says Jas. J. Walsh in the *American Journal of Medical Sciences*, August 1909, "that many of our most prominent murders are committed by native-born citizens of good education and with all the advantages that our civilization is supposed to give. Most of these murderers, however, escape on the plea of insanity." And he adds, "We do not care to make the punishment fit the crime now but the criminal, and we have gone so far to the other extreme that, whenever there is anything suspicious in a man's previous history, we are prone to think that this may have impaired his responsibility to such a degree that he does not deserve punishment."

*Read before the Michigan State Medical Society at Kalamazoo, Sept. 13-16, 1909.

†Dr. John B. Chapin in *American Journal of Insanity* for July, 1909.

Transitory insanity has been, by medical aid and abetment injected into so many criminal cases that it is becoming that we consider its real standing, its probability and frequency. The irresistible impulse, as commonly pleaded in court has little or no standing in psychiatry, except as a possibly rare incident in well developed insanity, but it should go without saying that the crime itself cannot stand as in itself the sole or chief evidence of the insanity alleged.

One frequently hears emotional insanity glibly prated of as if it were of common occurrence, but out of eleven authorities carefully consulted only two make any mention of emotional insanity though scientific authors discuss those disturbances of the emotions which are incidental to well established forms of insanity.

It is obviously a condition better known to the legal than to the well posted medical mind.

Regis discusses the disturbances of the emotions as symptomatic of certain insanities, but merely mentions emotional insanity, not describing it nor according it any prominence.

Blandford, an English writer (*Insanity and Its Treatment*, 1884), discusses moral or emotional insanity though he gives but cold comfort to those who would make of emotional disturbance or storm, a distinct variety of insanity, saying that "when immorality makes us question a man's state of mind, it must be remembered that insanity, if it exists, is to be demonstrated by other mental symptoms and concomitant facts and circumstances, and not by the act of wickedness alone."

Of transitory frenzy, Brower-Bannister (*Practical Manual of Insanity*, 1902) makes only this bare mention: "Transitory frenzy, though denied by some authors, is a recog-

nizable and well established form of disease. Neither Defendorf (adapted from Kraepelin), DeFursac, MacPherson, nor Paton make any mention of transitory frenzy. Gray (1895) discusses furor transitorius, which he defines as an outbreak of violent fury, lasting for a few hours and terminating in deep sleep, from which the patient awakes without the slightest memory of what has occurred; and never recurring in the same person."

"The onset," he says, "is sudden and it is characterized by the blindest fury, the patient smashing articles of furniture and tearing his own clothes into bits at the same time that he howls or growls or murmurs inarticulately. This attack may last a few minutes or hours, when the patient suddenly becomes quiet, and passes into a deep sleep of hours' duration, from which he awakens without the slightest memory of what has taken place." Other descriptions agree essentially with this, which, I venture to say, those long in contact with mental disease will recognize as certainly descriptive of a very rare form of insanity. Its rarity forbids the possibility of its being exemplified in even a small proportion of the cases of crime in which some such attack has been proposed as a defense. The few authors who describe it unite in their characterizing its excitement as blind and purposeless. This, however, is often lost sight of in the desire to make it cover distinctly purposeful acts.

Kraft-Ebing speaks of transitory mania as "presenting the features of an intense cerebral irritation affecting the sensory, ideational, and motor centers, suspending consciousness. The height of the outbreak rapidly attained after brief initial symptoms; self consciousness lost; the patient raving and delirious; the agitation of the patient unbounded and purpose-

less." "This disease," he says, "is under all circumstances very infrequent."

Church-Peterson (1908) refers to "transitory mania" as a term formerly employed to describe cases which, however, "do not really present the characteristic symptoms of a true mania."

"Transitory frenzy" is not mentioned by seven out of eleven authors consulted, and those discussing transitory mania, acute delirious mania, furibund delirium, lay no satisfactory foundation for its application to the criminal cases in which its sheltering aid is so often sought.

Epileptic insanity of which epileptic mania, epileptic excitement, is an occasional phase characterized not seldom by intense and blind excitement, in the course of which purposeless acts of great violence are not uncommon, is of course an outgrowth of epilepsy and so is not really of transitory type.

These states are to be regarded as equivalents of the more ordinary epileptic attacks. The psychical disturbances present in this neurosis are to be regarded as exacerbations of an underlying diseased condition, but "in the intervals, a general change of the whole personality is more prominent than in manic-depressive insanity" (Defendorf), and, to quote this author further: "Epileptic insanity is a complex accompanying epilepsy, characterized by a varying degree of mental deterioration, evidenced by impairment of intellect and to a less extent of memory; emotional irritability, impulsiveness, moral anergy, and incapacity for valuable production. . . . Epileptic deterioration may appear at any period after the onset of epilepsy, and thus far no direct relation between the number and severity of the convulsions and the degree of deterioration has been established." No author, however, is content to discuss epileptic insanity, epileptic furor, or epileptic confusion, without first the diagnosis of

epilepsy being well established by the most indubitable evidence. How utterly devoid of the scientific, then, is it to invoke a diagnosis of epileptic insanity to cover a crime in a case where no other evidence of epilepsy exists than a (somewhat dubious) history of three or four attacks of faintness during the life of the patient! Yet such cases are not unknown. Epileptic excitement or epileptic confusion is of course, a convenient cloak to excuse the commission of a crime, and cases are, I believe, well established where criminal assaults have been properly explained as due to that confusional excitement, which not seldom attends upon epileptic states but it is not usually difficult to confirm such a diagnosis by other attendant circumstances. The mere occurrence of the crime and the sometime history of epilepsy (even when this is undoubted) are of themselves insufficient to warrant a careful medical expert in giving such an opinion as will tend to free from all responsibility one charged with a serious crime. It is convenient to forget that the epileptic may be just as responsible as the non-epileptic. While there is, of course, a certain wise justice in resolving all reasonable doubts in favor of the accused it should be beneath any well posted and honest alienist to lend a ready assistance to a zealous advocate in building up confusing doubts upon a slimy foundation. Responsibility is not removed if a single doubt be injected, or several, and physicians, misled as advocates, serve the attorneys' purposes in helping to befog a jury. When a physician has been so misled, we sometimes see the sorry spectacle of one put upon the stand as an expert touching in the course of his testimony upon two or three varieties of insanity, pleading the difficulty of diagnosis and making no clear-cut pronouncement of the case in hand, but lending his

aid thus consciously, or unconsciously, to the eager desire of defendant's attorney to throw such an element of doubt into the case as will befog the issue in the mind of the jurors and so bring about a hoped-for disagreement.

The medical profession should be conservers of the law and supporters of justice rather than lend themselves to aid in the defeat of law and justice, as they have been too often known to do and the disrepute into which transitory insanity as a defense for crime has come, is by no means wholly attributable to the wiles of the criminal lawyer.

The skirts of our profession are not clear in this matter and there is need of a more careful study of all the aspects of such cases.

The employment of experts by one side or the other has been criticized and it has been said that one is of necessity influenced by the theories of the side employing him. As one who has been approached in several cases when sanity or insanity was the problem at issue, I am glad to bear testimony to the candor of the attorneys, who requested the service, in frankly asking that I proceed in such manner as I saw fit to determine the mental condition of the accused, consider the probability of mental alienation and report my findings when these had been determined, nor was there any effort to color these findings or influence my conclusions.

It goes without saying that the self-respecting expert could approach such a case only with a mind open and candid to receive unbiasedly all information bearing on the case, consider it impartially and scientifically and form conclusions deliberately and carefully. A position too seldom taken perhaps is that of the effort to study the case in hand with the immediate circumstances of the criminal act eliminated.

If in these conditions there be found no adequate evidence of insanity, the case is certainly open to suspicion that sufficient basis for a diagnosis of insanity is here wanting.

In a few cases, some evidences of degeneracy appear. These are always to be looked for and carefully considered, but questions of degeneracy should not be lugged into court as a vague matter, simply calculated to inspire the jurors' minds with doubt, nor should fanciful and slight asymmetries be cited as marks of degeneracy. It should ever be borne in mind that degeneracy, to be of serious import, must be attested by such marked departure from the normal as would tend in time to the extinction or marked deterioration of the race. Nothing less than this is of sufficient import to justify its introduction into the experts' testimony before the jury. Degeneracy is too often prated of as if adequately attested by only the slightest deviation from an ideal or classic type. Submitted to this test, we should most of us, I fear, be readily classed as degenerates.

We sometimes fail to appreciate how sadly the very integrity of our fundamental institutions is threatened in the easy putting to one side of the responsibility to which every citizen of a civilized country should be held for his acts. We have all of us heard the opinion lightly passed that one of unstable, emotional, make-up, especially if he can be shown in any way to have a poor heredity, should not be held responsible before the law, that his accountability should be less. It may soberly be questioned if the logical result of such an opinion is not to cheapen human life and detract from the civilization to which we ought to have attained. It is easy to grow sentimental and seek to cloak with excuses the unrestrained play of evil passions, but the medical pro-

fession should be the last, especially under cover of expert knowledge, to easily condone such offenses.

Walsh (already quoted, *Am. Jour. Med. Sciences*, Aug. '09) gives expression to wholesome, albeit unusual, sentiments when he says: "The tendency is toward too great mercifulness, which spoils the character of the nation just as leniency to the developing child spoils individual character. . . . The responsibility of most men for a definite action is quite clear in the sense that if they are punished they will not do it again, or will be less likely to do it again, while if they are not punished their escape becomes a suggestion to themselves and to others to repeat such acts. . . . It is absurd to say that a man may have such an attack of mental unsoundness as will lead him to do so serious an act as taking away human life, and then be expected to get over his mental condition so as not to be likely to do the same thing again. . . . Such acts, when really due to mental instability, occur either in depressed or maniacal conditions and these, as is now well known, from statistics very carefully collected, inevitably recur.

"Society must be protected from such individuals, and this constitutes the most important reason for punishment. It is no longer a personal matter, but a social requirement." And he further insists that "punishment is more needed for those of lowered mentality, of whom the expert may well declare that they are insane, than it is for the normal."

Quite refreshing, in these days of the sentimental conjuring of transitory insanity as a defense for crime, and of lax administering of law, are such words as we find in the opinion of the Supreme Court of Pennsylvania in the homicide case of *Commonwealth vs. Hallowell* (see *Journal A. M. A.* for Sept. 4th, '09, p. 1812.) The

court says: "Any variation, however slight, from normal conditions implies unsoundness in some degree, and ordinarily, when one is said to be unsound mentally, the expression indicates nothing as to extent or degree of the variation. There is, however, nothing uncertain or indeterminate in these words when they are used to denote the mental unsoundness which exempts from legal responsibility for what otherwise would be felonious and therefore criminal homicide. The words used in this connection have a fixed and definite meaning. They denote a mind so far devoid of understanding that it is unable to distinguish between right and wrong, and is therefore without freedom of moral action. However unsound in mind a man may be generally, it is only when he has lost utterly his power of moral perception that he ceases to be responsible in the eye of the law." And in the same opinion the Court further says: "For however correct the defendant's witnesses were in the opinions expressed that the defendant was a man of unsound mind it was manifest from the facts given by each in support of such inference, with a few exceptions, that the unsoundness they were considering was not that which the law exculpates."

To recapitulate: 1. Transitory insanity is of rare, not to say doubtful occurrence.

2. More frequent than its bona fide occurrence is its allegation solely as a means to the end of avoiding just responsibility for crime.

3. Its most frequently pleaded varieties, transitory frenzy, transitory mania, emotional insanity, have but little standing among the best psychiatric authorities.

4. Epileptic excitement and confusion while of admitted occurrence is often, without adequate basis, pleaded as a cover for crime.

5. It is unworthy of experts unable to

make and defend a clean-cut diagnosis in these cases, to inject vague claims of insanity into such a case for the purpose of creating such doubt as will befog the jury.

6. Medical experts should be careful to prove themselves anxious to conserve rather than defeat the law.

7. The medical expert should approach such cases with absolutely unbiased mind, reach his conclusion scientifically, take a clean-cut and firm position and maintain it with the courage of his convictions.

8. If with the crime eliminated the case presents no adequate evidence to warrant a diagnosis of insanity such a diagnosis should not be made, for the crime cannot be of itself the sole evidence to warrant such a diagnosis.

9. The expert especially in cases where transitory insanity is alleged should zealously guard himself against being a party to the further increase of the disrepute into which medical expert testimony and insanity as an easy defense of crime have already come.

THROMBO-PHLEBITIS, AND ITS RELATION TO PHLEGMASIA ALBA DOLENS*

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The pathological conditions occurring in the veins have received in comparison with those of the arteries but scant attention. In a general sense the same disease processes are found in the veins as in the arteries, but owing to the thinner, weaker structure of the vein walls, inflammatory changes are much more common to the veins than to the arteries. Inflammatory processes may originate within or without the vein, but owing to the thinness of their walls, we may assume that all three coats are affected at the same time.

Phlebitis may be regarded as a lymphangitis of the vein wall, as the inflammatory processes extend along the lymph spaces and vessels with which the wall is richly supplied.

As soon as the phlebitis extends to the

intima of the vein, thrombosis results. This condition is known as phlebo-thrombosis. As the origin is from without, the condition is also termed extravascular.

In those cases where the phlebitis results from the thrombosis, the condition is known as thrombo-phlebitis, and is also termed intravascular and hæmatogenous.

The relation that thrombo-phlebitis bear to Phlegmasia Dolens is an interesting one, and a condition over which considerable divergence of opinion exists as to its etiology.

At the June meeting of the Houghton County Society, I presented a clinical report of phlebitis following delivery, and have been asked to give at this meeting a digest of the theories advanced as to the etiology of this complication and its treatment.

The differentiation between phlebitis with

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secondary thrombosis, and thrombosis with secondary phlebitis, is in the majority of cases impossible. Neither the nature of the primary affection, the character of the fever or the pain, nor the late appearance of the symptoms in the course of another disease can be used as differential points. Some of the writers upon this subject refer to one or both varieties under the common head of phlegmasia. So, in considering this condition, and in giving a resumé of the theories of the physicians who have made a study of this pathological process, it will be convenient at one time to refer to thrombo-phlebitis, at another to phlebo-thrombosis, or at times to refer to the subject under the name of Phlegmasia.

The question is, "What are the causes of thrombo-phlebitis in the veins of the lower extremities, and its resulting symptoms commonly known as phlegmasia and what is the treatment for the condition?"

Thrombo-phlebitis of the femoral vein is undoubtedly associated with phlegmasia, but the etiology of the condition is a subject upon which few authorities agree. Fortunately phlegmasia is a rather rare complication, and it is not the ill fortune of every physician to have met with it. I have been able to collect the reports of seventeen cases, and out of that number, nearly one half of the physicians advanced theories as to its etiology, other than that commonly accepted at the present day. It seems only fair to say, that in comparing the various theories, that there is truth in all; but it seems to me that the cause of the contention arises from the fact that some try to class the etiology of all cases under one head, whereas, if one admits that there are causes instead of one cause alone, the subject becomes much more logical and much less confusing.

In order to refresh our mental picture of this condition, let us review briefly the symptoms of phlegmasia. As a greater part of these cases occur following childbirth, let us reckon from the time of delivery in ascertaining the time that may elapse before the first symptoms are noted. Although Phlegmasia may antedate delivery, it usually occurs from the tenth to the thirtieth day. It may occur from the fifth day to the seventh week.

The typical symptoms begin with a stiffness and heaviness in the leg, usually the left, with pain especially in the calf of the leg. This is soon followed by swelling which gradually ascends from the ankle to the groin. There is likely to be tenderness along the course of the femoral vein, which may be marked by a line of inflammatory redness. Other superficial veins may have a like appearance. The lymphatics may be involved. Moderately high, irregular, and continued fever, associated with a rapid, compressible pulse, accompany the swelling. These two symptoms disappear commonly before the swelling subsides. The limb presents a white, swollen, glistening appearance, and is hard, elastic, and does not pit on pressure. There are the usual symptoms of gastric and intestinal disturbance, foul tongue, loss of appetite, nausea and vomiting. Profound physical depression is present, sometimes great restlessness and sleeplessness. The face may present a dusky flush.

Such are the typical symptoms. The condition has long been recognized, but the causative factors have as long been a problem among medical men.

THE THEORIES AS TO THE ETIOLOGY OF PHLEGMASIA

As early as 1784 White advanced the theory that the condition was due to an obstruction, or some morbid process of

the lymphatics, and the glands of the parts attacked.

In 1817 Davis, in autopsy, found evidence of extensive inflammation of the veins. In 1829 Lee succeeded in tracing the inflammation into the uterine branches of the hypogastric veins, and gave it the name of crural phlebitis. In 1843 Holmes advanced a theory more nearly that which is generally accepted today, but it did not meet with popular reception. In 1847 Semmelweiss called attention to puerperal infection. This was followed by the work of Pasteur and Lister, who in giving the nature of puerperal infection, pointed out the way later in the 70's to Mackenzie and Tyler Smith who advanced the theory that phlegmasia results from contagious infection. Smith considered that a woman so attacked escaped a greater danger of diffuse phlebitis or puerperal fever. Tillbury Fox concurred in this theory, but King held the condition to be a primary affection of the lymphatics, and the venous manifestations merely a secondary to the original malady. About this time Mackenzie came to the conclusion, from a series of experiments, that phlegmasia is aggravated by a vitiated condition of the blood. Andral and Gavarret found that the fibrin of the blood diminished during the first six months of pregnancy, but during the latter months greatly augmented, assuming the characteristics of blood present in inflammatory conditions.

A modern writer holds that the condition of the bowels exerts an important influence over the blood, lymphatics and tissues in general. He supports this theory by stating that a chronic catarrhal condition of the bowels may extend to the pelvic tissues during gestation, producing a semi-cellulitis, and an atonic condition that is too weak to support a reparative action. In this condition, after the separation of the placenta, the uterus

is not properly cleansed of its lochia, forcing the system to the other alternative of absorbing it. He further states that the time of incubation depends upon the degree of cellulitis, lymphangitis, quantity of septic absorption, the placental separation, and the resisting force of the tissues. With the appearance of the disease it should be remembered that it begins by increasing the inflammation of the already inflamed lymphatics and pelvic tissues.

Another author points out that the veins of the uterus and of the surrounding connective tissues are prone to thrombosis, by reason of the sluggish circulation, pressure during pregnancy, and the altered constitution of the blood during the puerperium.

THE VARIETIES OF PHLEGMASIA

There are two distinct varieties of phlegmasia, the one primarily thrombotic, and the other, cellulitic.

The cellulitic variety consists of a septic inflammation of the connective tissues of the pelvis and thigh, spreading from the perineum, and the deeper pelvic fascia. This form offers a satisfactory answer to the theory of lymphatic infection and extension. It also explains some of those cases, perhaps, where it is claimed that no thrombosis is present. The cellulitic variety gives rise to the extravascular infection of the vein, the result being, in most cases, plebo-thrombosis. This form of thrombosis is rare. In this variety the swelling extends from above downwards.

The more common variety is that of thrombo-phlebitis.

There are cases where the thrombosis is primary, and no infection exists. Thrombosis has occurred before delivery, and those cases may be said to be due to the pressure to which the vessels of the extremities are subjected during pregnancy, along with

the stagnation of the blood current, and the relative increase of fibrin in the blood stream.

CASES OF THROMBO-PHLEBITIS NOT FOLLOWING DELIVERY

It is certain that the condition of the blood favors thrombosis, and that thrombophlebitis of the femoral vein is not due alone to the infection from the genital tract following delivery.

Thrombo-phlebitis has also been associated with malignant growths of the uterus, ulceration of the cervix, and the endometrium. Suppressed menstruation in a young girl, following the walk home from school in a chilling rain, has resulted in thrombo-phlebitis. It has appeared in males following dysentery, diarrhea, typhoid fever, and erysipelas of the arm. It has followed a crutch wound of the mammary gland. It has been a complication of carcinoma of the rectum.

THEORY OF SEPTIC INFECTION

The recital of these cases leads us to the theory of septic infection.

If we assume that the cases of thrombophlebitis are septic in origin, that there is present in the blood stream some micro-organism which enters into the formation of the clot and the resulting phlebitis, that the mild cases are feebly septic, are quickly overcome by the phagocytic elements of the blood, and, therefore, may present no other symptoms of infection, we will have a solution to the majority of the cases.

There is no specific germ. It may be the putrefactive bacteria, associated with the absorption of preformed ptomaines, followed by the spirillæ, staphylococcus, streptococcus pyogenes, and other cocci that multiply and form poisonous ptomaines after penetrating the tissues. The pneumococcus, gonococcus, the typhoid and colon bacillus may also be the micro-organisms of infection. The streptococcus

pyogenes is perhaps the most common, and is usually associated with other vegetable ferments.

It is said that in former days it was the custom of the physician to trust to his olfactory sense to determine whether or not a woman was infected. If the lochial odor was normal, and there were few or no fever symptoms present, and thrombosis resulted, he would feel assured that infection could not have been the cause of the condition. Yet the odor that the streptococci and the staphylococci lend to the lochial discharge is but slight, and the resulting infection may be severe. On the other hand, the odor arising from the colon bacillus infection is very disagreeable, but such infection is comparatively harmless.

TRACING THE FORMATION OF A THROMBUS THROUGH THE MEANS OF SEPTIC INFECTION BY THE BLOOD STREAM:

The primary seat of infection is usually in the genital tract. Assuming that the clot in the end of the uterine sinuses becomes infected by the streptococcus pyogenes, for example, let us trace the infection to the femoral vein. The cocci spread rapidly in the axial direction of the vein, until they pass beyond the confines of the clot and enter the blood. There a battle takes place between the micro-organisms and the phagocytes, resulting in the coagulation of the latter, temporarily checking the advance of the cocci. But the vitality of the subject being impaired, or the phagocytes outnumbered, this barrier is again penetrated and the battle renewed. This is repeated from time to time, with or without chill and fever, the phagocytes gradually falling back in deference to the periodical extension of the clot, until it reaches the femoral, a vein of large caliber. Here the blood stream is sluggish, the excessive fibrin is rapidly deposited, and the vein becomes rapidly obstructed.

The rapidity of the growth of the thrombus depends upon the amount of the septic infection.

The thrombus increases and extends until the phagocytes become sufficiently numerous and powerful to destroy and carry away the invading germs.

The presence of the thrombus along the vein leads to the lymphangitis of the vein wall with the resulting phlebitis.

Extension to the limb by the avenue of the lymphatics is similarly progressive. There are frequent attempts at arrest by coagulation successfully in a number of glands in a chain. This continues until a number of lymph ducts are obstructed and a condition developed that has been called "lymphatic edema." The walls of the vein at a point distant from the infected atrium may become inflamed and softened by a septic lymph gland in close proximity. The intima is roughened and over the surface the white corpuscles build the thrombus. This at first acts as a barrier to shut off the cocci as they penetrate the inflamed vein. If the phagocytosis is successful, the clot is limited, and is known as aseptic or white clot. But if the bacteria penetrate the barrier and enter the blood, the coagulation is rapid, and layer after layer is added until the vein is occluded. This constitutes the septic or red clot. The latter means of infection exemplifies the extravascular means of infection, and the condition resulting is a phlebo-thrombosis of the vein. The former method of infection by means of the micro-organisms within the blood stream is the intravascular form, and the condition resulting is thrombo-phlebitis.

SUMMARY OF THE THEORIES AS TO THE ETIOLOGY OF THROMBO-PHLEBITIS

In summarizing these theories as to the etiology of thrombo-phlebitis we find that the causes are:

1. An atonic condition of the general system.

2. A vitiated condition of the blood following disease, pregnancy and delivery.

3. An excess of fibrin in the blood during the latter months of pregnancy, and during the puerperium.

4. A chronic inflammatory condition of the bowels that may extend to the pelvic tissues during gestation.

5. That thrombo-phlebitis may result primarily under these conditions by pressure upon the vessels of the extremities causing stagnation of the blood current

6. But that in the majority of cases, influenced by the previous causes, the condition may result by means of septic infection extending to the veins by the following means:

- (a) An inflammation of the connective tissue of the pelvis and thigh.

- (b) By way of the lymphatics.

- (c) And in the direct infection by means of the micro-organisms being present in the blood stream.

TREATMENT OF THROMBO-PHLEBITIS

The treatment of the conditions resulting from thrombo-phlebitis is largely symptomatic. As the majority of cases occur as a complication of the puerperal state, the treatment is considered in reference to that period. However, the same principles may be applied to phlegmasia having another cause as an origin.

THE TREATMENT FOR THE VARIOUS SYMPTOMS MAY BE GROUPED AS FOLLOWS:

Limb Indications: The affected limb should be kept well elevated and in a state of absolute rest. No rubbing or massage should be permitted. The entire limb should be wrapped in cotton to relieve the sensations of cold and numbness. Various therapeutic agents have been suggested as local applications, among which may be mentioned:

(a) Unguentum Crede to the site of the thrombus.

(b) A 20% ichthyol ointment applied to relieve pain.

TREATMENT OF THE ORIGINAL SITE OF INFECTION

In a perfectly typical case the disinfection of the uterine cavity may be unnecessary, but it is so difficult to determine whether or not there remains in the uterus some infecting material that it is safe to say that in every case where there is the least suspicion, the uterus should be thoroughly curetted. The genital tract should then be thoroughly irrigated daily, first by cleansing the vaginal portion by a saline or mildly antiseptic douche, followed by a uterine flushing and douche rendered antiseptic by boric or carbolic acid. The Carosa treatment has been suggested as an excellent substitute for the daily douches. This treatment is carried out in the following manner: The vaginal and uterine cavities are first thoroughly cleansed, then a small sterile catheter, to the tip of which is stitched a narrow strip of gauze is introduced into the uterus. The sterile gauze is loosely packed about the catheter until the cavity is filled. The cervical canal is not packed, but a piece of tape is left projecting for the removal of the gauze. The end of the catheter is brought out through a sterile dressing, and is protected by a second dressing. This keeps the catheter from contamination by the vulvar pads. One or two drams of a 50 to 75% alcohol solution is injected into the catheter every thirty minutes for the first 24 to 48 hours, depending upon the severity of the symptoms of the infection. The intervals between the injections are increased as the temperature lessens. The dressing should be left in place four or five days.

GENERAL INDICATIONS

The physical depression and weakness

should be combatted with large quantities of alcohol, and as much food of an easily digestible character as the patient can assimilate.

The condition of the bowels is extremely important. They should be thoroughly emptied by initial broken doses of calomel followed by a saline. The saline may be used alone, by giving it dissolved in hot water, in broken doses, every half hour until the effect is obtained. This procedure should be repeated every third day.

The patient should be encouraged to drink plenty of water in order that the kidneys may be flushed.

She should receive alcohol and water sponge baths daily.

Digitalis, aconite, and gelsemium are used as vaso-motor sedatives, to aid in relieving the inflammation and fever. Potassium nitrate in five grain doses repeated every three hours has been used very successfully in the treatment of these cases.

TREATMENT OF THE CELLULITIC VARIETY

The inflammation of the pelvic tissues and those of the thigh may be lessened by constant application of dressings rendered moist with a solution of aluminium acetate, or a 50% solution of alcohol and water. Cloths wrung out of hot water containing salicylic acid and sodium bicarbonate have also been successfully used in treating the inflammation of the pelvic tissues. Pus in the connective tissue of the thigh should be watched for and evacuated in time to avoid (extensive) burrowing. Extensive and multiple incisions may be required.

The treatment of the secondary or passive stage consists in the administration of proper tonics, and in keeping the patient in bed for two weeks after all pain and swelling have disappeared. The limbs should be gently massaged and rubbed

twice daily with a solution of iodide of ammonia. After the patient begins to use the leg, it should be protected from swelling by the wearing of a fairly snug flannel bandage.

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In closing I wish to thank Dr. Reuben Peterson, Dr. Geo. H. Noble of Atlanta, Ga.

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THE PRESENT STATUS OF THYROID SURGERY*

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I make a statement in the beginning of this paper which will no doubt sound erroneous but it is nevertheless true. There have been more operations performed on the thyroid gland in the past ten years than during the entire 1899 years preceding. Years ago the mortality following thyroid operations was on an average of from 25 to 45%; now in the experienced hand it ranges from 4-10 of 1% to 4%. The Kochers of Europe and Mayos of the United States have been the leaders in this hitherto unexplored department of surgery and it is to these great surgeons we owe our present knowledge of this subject. The surgeons of the past shunned operations about the neck and most of those of the present day do not enjoy goiter operations. For the above reasons diseased thyroid glands were allowed to wreck the general health of patients to that extent where operations if performed were of no benefit and most frequently fatal. The day for treating thyroid glands with semi-surgical, medical, mechanical and electrical means is past. The operative treatment is most satisfactory, giving immediate relief in the majority of cases with but a brief period of disability.

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The general technique of this operation is the same in all cases where the gland is of considerable size and may be outlined as follows: The patient and field of operation are prepared as for any major operation. The kind of anæsthetic used is selected to suit the individual case; but ether is most frequently employed preceded by a hypodermic injection of morphine 1-6 and atropin 1-150. In some cases it is advisable to use some local anæsthetic and in others chloroform is preferable. After the patient is placed upon the table it is advantageous to place beneath the back of the neck a firm pad or sandbag to make the gland more prominent and to give the operator more freedom. From now on the technique is that used by Kocher and known as Kocher's method. This method is employed by most operators with few modifications. First a transverse curved incision is made over the most prominent portion of the gland with the convexity of the curve toward the sternum. The anterior jugular veins are exposed and tied above and below; the incision being made between the ligatures. The upper portion of the jugular veins are then elevated with the flap including the skin, superficial fascia and platysma myoides muscle. Now the ster-

nohyoid, sternothyroid and omohyoid muscles are cut across at a higher level than the skin incision to prevent sinking in of the neck from scar tissue contraction and also to preserve the nerve supply to these muscles. The capsule of the gland is easily reached from this point by blunt dissection. The capsule has the appearance somewhat of the peritoneum, being silvery and glistening. The capsule is now opened and the finger passed between it and the gland from which it is easily separated. When the superior and inferior thyroid arteries and veins are found by the sense of touch they are tied off.

It is a good practice to include a small portion of the glandular tissue within the ligature to prevent slipping and also to keep from injuring the parathyroid bodies that lay within the immediate neighborhood. The lobe is then freed and the isthmus tied and cut. Kocher advises tying the isthmus (*en masse*) and applying to its cut surface pure carbolic acid followed by alcohol. In my limited experience I have found that mattress sutures of catgut are more capable of stopping the post-operative oozing of blood and thyroid secretion from the isthmus than is the single ligature; however, in any method used it is proper to apply carbolic acid to the cut surface of the gland to close up the spaces as well as the minute capillaries. If this searing method is not employed a considerable quantity of thyroid secretion escapes into the surrounding tissues and is reabsorbed, presenting a train of symptoms not unlike acute thyroid intoxication.

Before suturing a wick of gauze is placed in the most dependent portion of the wound and the muscles as well as the skin united around it. Following the majority of operations on the thyroid gland the patients are shocked and to combat this shock I have found physiological saline solution, subcutaneously adminis-

tered, of great benefit. The drain should be left in the wound from 2 to 4 days, after which it is removed and the canal irrigated with some mild cleansing and stimulating solution. The above outlined method with few variations to suit the individual cases may be used in any operation on the diseased thyroid. I have found when the gland is very small it is often not necessary to make the transverse incision but to employ instead a vertical incision, between the anterior jugular vein and the sternocleidomastoid muscle. After this incision is made one can separate the underlying muscles and reach the lobe of the gland without cutting them across. The scar following such an incision is almost invisible and the tissues of the neck show no shrinking or falling in.

Operations upon colloid, simple or diffuse adenomata and upon encapsulated adenomata, as a rule involve but slight risk to life of the individual. For the above reason many patients who are so afflicted wish to be relieved of the deformity, tracheal pressure, cough or hoarseness or possibly a severe neuralgia. We must admit that aside from the discomforts mentioned above, the death rate from these forms is very low, and only then from the intrathoracic type or from malignant or degenerative changes in the gland. There are a number of cases in the Northern Michigan Asylum in which the measurements exceed 20 inches and one case in particular the neck measurement is 28 inches without any severe symptoms being manifest.

In the other great class of cases commonly known as exophthalmic goiter the prognosis is not quite so good. Mayo prefers to use the term hyperthyroidism instead of exophthalmic goiter, because he believes it will come into general use in describing a condition which manifests such varied symptoms. By using this term it is probable that an early diagnosis will be

made and surgical relief given to those who are now treated for heart disease, nervous prostration, gastric crisis and intestinal toxemia until a projecting eyeball or goiter becomes sufficiently prominent to attach the label of Parry's disease, Grave's disease, Basedow's disease or exophthalmic goiter to the unfortunate individual who must then run the gauntlet of the enormous variety of therapeutic agents which are supposed to be good for the disease when properly christened. It is quite probable that many cases of hyperthyroidism never progress beyond the early stages and are not diagnosed as such. It is also probable that many cases in the advanced stages of the disease get well without or in spite of medical treatment. Mayo claims that $\frac{1}{4}$ of the number do so. In examining the gland in 294 cases of hyperthyroidism, Ewing, McCallum and Wilson were able to show a definite change in the parenchyma of the gland in this type of disease. The results from the reduction of secretion by surgical methods are certainly almost marvelous. Before the last decade the mortality following operations for hyperthyroidism was some 45%. Patients frequently died upon the table on account of their poor physical health at the time of the operation. A great many suffered from fatty myocarditis, some from parenchymatous nephritis and others showed arterial degeneration with fatty changes in the para-thyroid glands. Today these cases are recognized earlier and operative treatment given without such fatal results. Mayo has adopted a method of treatment that seems to me to be very appropriate in neglected cases with poor physical health. His method is to first under a local anæsthetic tie off the superior thyroid arteries and veins on each side as a preliminary procedure. By doing so the gland is relieved of its enormous blood supply and its functioning power obtained, whereby the

patient is permitted to gain enough strength to stand the radical operation later. Occasionally this preliminary treatment is all that is necessary to balance the metabolism of the patient, but if not sufficient a second operation is performed and one lobe of the gland removed. The dangers encountered in these cases are shock, hemorrhage, auto-intoxication, infection and pneumonia. Collapse of the trachea is also mentioned by Mayo among the causes of death. You all no doubt are fully aware that the pressure produced by the lobes upon the trachea causes a softening of the cartilaginous rings and when the gland is removed the trachea collapses. One other precaution that is necessary in this operation is to be careful not to wound or cut the recurrent laryngeal nerve, which if destroyed produces paralysis of the vocal chord on the affected side. The para-thyroids also must be spared, because if injured or removed tetany is liable to follow. One of my cases at the Northern Michigan Asylum showed tetany on the fifth day following the operation and lasted for two days. The symptoms were not severe and were promptly relieved by the administration of thyroid extract which contains also extract of the para-thyroids. To digress, I will state the Mayo advises in operating for hyperthyroidism when the auto-intoxication is profound, to remove one lobe with the isthmus and tie the superior thyroid artery on the opposite side.

The prognosis following operations for hyperthyroidism is good. Sixty-five per cent recover completely. Thirty per cent are markedly improved and five per cent are unimproved.

I might state before closing this paper, in operating upon the thyroid gland, always leave the posterior portion of the capsule. If this precaution is taken, injury to the para-thyroids and the recurrent laryngeal nerve is seldom encountered.

SUBPHRENIC ABSCESS*

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Subphrenic or subdiaphragmatic abscess as usually understood denotes a collection of pus in contact with the concave surface of diaphragm. Abscesses of this kind have long been observed postmortem but only within recent years have they been surgically treated or scientifically studied. Barlow is credited with their first description in 1845. Volkman recorded the first operation for this condition in 1879. Since then Maydl, Finkelstein, Perutz, Körte, Barnard and others have collected and published several series of such cases as a result of which their pathogenesis and treatment have been much advanced.

Subphrenic abscesses are observable clinically on both right and left sides of the upper abdomen. Barnard urges their anatomical classification and from that viewpoint outlines four peritoneal and two cellular spaces in which they occur. The intraperitoneal subphrenic space is divided by the falciform ligament into right and left fossæ and each of these is subdivided into anterior and posterior by the right and left lateral ligaments. A right extraperitoneal space is formed between the layers of the coronary and other peritoneal ligaments of the liver, while the left develops in the cellular tissues around the upper end of the left kidney and extends upward as the spreading inflammation separates the peritoneum from the under surface of the diaphragm.

Of 76 cases at the London Hospital Barnard records that right anterior subphrenic abscesses occurred 27 times. In 15 of them other fossæ were involved. Pus

was found in the right posterior intraperitoneal pouch in 10 cases, in 9 of which other fossæ were associated. The left anterior intraperitoneal subphrenic fossa was involved in 30 of the 76 cases. In three of them other fossæ were affected. The left posterior intraperitoneal subphrenic space was involved only three times and in two was a complication with other fossæ. Right extraperitoneal subphrenic abscesses were met with in 19 cases, in 6 of which other spaces were involved. Four of the 76 cases were abscesses in the left extraperitoneal subphrenic space.

Like pelvic abscesses the subphrenic variety are always secondary and it is only by an investigation of a large number of cases that a correct conception of their causes can be obtained. Their sources include every organ within the abdomen, though of course the commonest sites of abdominal infections are more often in evidence in subphrenic diseases.

As the experience of one individual may vary from another so the findings in one series of cases may fail to be duplicated even in general or important particulars by the investigation of another series. For instance, in 38 cases reported by Hunt and quoted by Moynihan one half had their origin primarily in the stomach, a proportion borne out in no other record that I have seen. In Körte's 60 cases the stomach was the starting point in only 9 cases or 15%. Taken with one case originating in the duodenum they together constituted one sixth. Barnard's studies led to the conclusions that the stomach and duodenum contribute about one-third of all

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cases, the appendix one-sixth, hydatids and the biliary tract one-sixth, while the remaining one-third are traceable to many sources each of which is individually rare.

Combining 161 cases of Maydl's series, Perutz's 208 cases, Körte's 60 and Barnard's 76, making a total of 509 cases, we find the original sources of the subphrenic abscesses to have been in the

stomach	in 134 cases or 26.3%
duodenum	in 17 cases or 3.3%
appendix	in 119 cases or 23.3%
liver and bile passages	in 47 cases or 9.2%
hydatids	in 33 cases or 6.4%
intestine	in 14 cases or 2.7%
pancreas	in 6 cases or 1.17%
spleen	in 12 cases or 2.34%
kidney	in 24 cases or 4.68%
ribs and vertebræ	in 8 cases or 1.5%
intrathoracic	in 24 cases or 4.68%
female generative organs	in 7 cases or 1.3%
traumatic	in 16 cases or 3%
metastatic	in 19 cases or 3.7%
various and unknown	in 29 cases or 5.6%

This combination indicates that Barnard's proportions are too low for appendicitis and a little too high for each of the other groups.

The signs of subphrenic abscess are in the main those of suppurations elsewhere varying according to the source and route of infection. The constitutional symptoms are pain and tenderness in the upper abdominal region, chills, fever, immobile swelling, leucocytosis, thirst, disturbed nutrition and dyspnea. There is always a previous history of a preliminary affection with its usual attendant symptoms, an investigation of which will lead to the original source of the disease and its route of travel. If the onset be acute the abscess is likely intraperitoneal. If it be insidious it is probably extraperitoneal or in the

lesser peritoneal cavity. On account of thoracic complications which ensue in the majority of cases there may be pleural exudate with dulness and displacement of lung and heart and changes in breath sounds, resonance and vocal fremitus.

The course of subphrenic abscess is that of a complication of some other abdominal infection. One or more fossæ are invaded. A diffuse exudate is poured out. Unless by gravity the exudate be drained to the pelvis it begins by the fourth day to be limited in its progress and by the eighth to the fourteenth day, according to Barnard, the abscess becomes localized. It increases in size, crowding up the diaphragm, obliterating the lower part of the pleural cavity, pushing up the lung, depressing the viscera beneath as far as adhesions will allow, and gradually descending along the thoracic wall or appearing in the epigastric region as a fluctuating swelling beneath the abdominal wall.

Barnard has done well to call attention to the preventive treatment of subphrenic abscess. Between the diaphragm and the recto-vaginal or recto-vesical pouch the dense muscles of the back and the perinephric tissues project like a great divide. If on the occasion of a peritoneal infection the patient be supine in bed, serum will gravitate toward the diaphragm and into the pelvis. If on the contrary the patient be supported in the Fowler position the peritoneal fluids will tend to drain from the subphrenic spaces over the loin structures into the pelvis from which they may more easily be removed. Once formed, subphrenic abscess usually requires radical treatment.

If left to nature most cases of subphrenic abscess ultimately succumb to its effects. Rarely the abscess ruptures into a bronchus, the stomach or intestine or outwardly through the abdominal wall. If the cavity be completely evacuated the

patient may recover, but a discharging sinus is more liable to persist. In the series of 76 consecutive cases of Barnard 12 were not operated upon and all of them died. Deaver and Ashhurst quote a death-rate of 100% in a series of unoperated cases of suppuration in the lesser peritoneal cavity collected by Michel and Gross. Eisen-drath records a mortality of 82% among the unoperated cases of a series of subphrenic abscesses following appendicitis. Of 104 unoperated cases in Maydl's series only six recovered, a mortality of 94%. In Perutz's series there was a mortality of 85% in those cases not operated upon.

Such is the picture set by conservative treatment. In contrast to that surgery presents a noble relief. Of 74 cases operated upon in Maydl's series 39 recovered, 52%. Those were treated prior to 1894. Of 155 cases in Perutz's series operated upon between 1894 and 1904, 116 recovered, 74%. Of 64 operated cases in Barnard's series 40 recovered, 62.5%. Of the 21 cases operated upon by Barnard himself there were 17 recoveries, 81%. In Eisendrath's cases the percentage of recoveries after operation was 72.62%. From the statistics given it is plainly evident, first, that operation offers by far the more favorable prognosis, and, second, that the later series and technique show the lower mortality.

The operations adopted for subphrenic abscess may be classed as anterior, posterior and lateral. The anterior consist of incisions and drainage through the epigastric and hypochondriac regions. The posterior and lateral include access beneath or through the pleura and diaphragm. Barnard regards posterior methods of drainage more favorable than anterior and affirms that the posterior routes should always be adopted when it is possible.

In explanation I wish to state that the objects of this paper are to call to the attention of the members of this society a patho-

logical condition that I believe to occur more often than it is discovered, and to report an unoperated case that recovered and another that recovered after operation. Like pelvic cellulitis and the perityphlitic conditions which after much tribulation took tangible forms and resolved themselves into pelvic abscesses in Douglas' pouch and appendicitis, so I believe more often than we have supposed the upper abdominal complications of some of our gastric, appendiceal and biliary tract cases would be read more clearly as subphrenic suppurations. It is to be hoped that this reference will stimulate others to observe this condition more carefully.

The cases I desire to report are as follows:

Case 1—L. L., age 15, came under my care March 31, 1908. She had attended school up to four days previous but had not been in usual health for several weeks. I was summoned in haste and found her in a state of collapse. There was dyspnea, general abdominal pain and tenderness over Robson's point, high fever, rapid pulse rate, her complexion was sallow, there was nausea and vomiting, and she could not lie down. Her condition was critical and yet consent could not at any time be obtained to remove her to a hospital. The urine showed traces of bile, but otherwise it and the feces were negative. Believing pus to be present a blood examination was made April 3 with the following result:

Hemoglobin	80%
Differential count of leucocytes	
Polymorphonuclears	84.2%
Large lymphocytes	4.6%
Small lymphocytes	11.2%
Eosinophiles	—

The red cells showed slight loss of hemoglobin, but no other change. There was a large increase in number of leucocytes,

and the polymorphonuclears were markedly in excess.

Microscopical Diagnosis—Moderate anemia of secondary type, with a marked polymorphonuclear leucocytosis.

The symptoms mentioned continued and became at times more aggravated. Dulness extended upward on the right side as far as the sixth rib and downward to the umbilicus. A diagnosis of subphrenic abscess with pleural complications was made out and the biliary tract was believed to be the origin of the condition. On April 11 the pleural cavity was aspirated in the seventh interspace near the right midaxillary line and four ounces of blood-stained fluid were removed. The abdominal swelling and tenderness moved toward the left and dulness appeared on the left side. On April 17 thoracentesis was performed in the sixth left interspace near the midaxillary line and sixteen ounces of clear serum were removed. The relief following this procedure was marked. Five days later the last aspiration was repeated and twelve ounces of clear serum were removed. Relief was again experienced. The symptoms abated somewhat during the following days and on April 26 and 27 crystals were passed in appreciable amounts with the feces, which on examination with hydric sulphate proved to be cholesterin. The diagnosis had been confirmed. Relief had already been felt, convalescence soon became established and the patient is apparently normal today.

Case 2—This case, quite typical of subphrenic abscess originating in a perforating gastric ulcer, is reported through the courtesy of Dr. H. O. Walker.—J. P. P., age 51, had been treated for stomach trouble for two and a half years. Early in 1908 he had an attack of pain in the upper abdomen after eating. He was distended much with gas, later the pain extended over the whole abdomen. In January 1909,

he had another attack of severe pain which became almost constant. There was great distention, especially on the left side over the stomach. He was removed to the hospital February 13, 1909, and a blood examination showed polymorphonuclear leucocytosis 75%, hemoglobin 85%. On February 16 a median incision was made two inches above the umbilicus. The parietal peritoneum was nicked and seropurulent fluid poured forth in a jet. The opening was enlarged to about an inch when a liter of foul smelling fluid was removed. The cavity containing the fluid seemed to be walled off and confined to the left hypochondrium. A large rubber drainage tube was inserted and the abdominal opening otherwise closed. Relief followed but was not complete. On February 23 long curved forceps were introduced through the former incision and the lowermost border of the suppurating cavity sought for. An incision was made over the end of the forceps through the left loin and a drainage tube pulled through from one opening to the other. A tedious convalescence followed and ended in complete recovery.

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The Journal of the Michigan State Medical Society

All communications relative to exchanges, books for review, manuscripts, advertising and subscriptions should be addressed to Wilfrid Haughey, A. M., M. D., Editor, 24 West Main Street, Battle Creek, Michigan. The Society does not hold itself responsible for opinions expressed in original papers, discussions or communications.

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AUGUST

EDITORIAL

THE BAY CITY MEETING

The Bay City Meeting of the M. S. M. S. should be the best we have ever had. The arrangements made by the Bay County Medical Society are all that could be asked—and are under the charge of the following sub-committees:

Space and Exhibits:

Dr. F. E. Ruggles
Dr. R. W. Brown
Dr. Edward Goodwin

Halls and Place of Meeting:

Dr. A. W. Herrick
Dr. R. C. Perkins
Dr. R. W. Brown

Advertising:

Dr. M. Gallagher
Dr. W. R. Ballard
Dr. C. M. Swantek

Information and Accommodations:

Dr. R. C. Perkins
Dr. H. B. Morse
Dr. G. W. Trumble

Entertainment

Dr. P. R. Urmiston
Dr. T. A. Baird
Dr. R. E. Scrafford

Reception:

Dr. Wm. Kerr
Dr. F. H. Randall
Dr. J. W. Gustin

Badges:

Dr. H. N. Bradley

DR. GEO. W. CRILE

We wish to announce that we have secured Dr. G. W. Crile, of Cleveland and the Western Reserve University, to give the scientific address as the guest of honor of the M. S. M. S. at the Bay City Meeting. We feel that Dr. Crile needs no introduction to the medical profession of Michigan. His researches on Cancer, Blood Pressure, Shock, etc., have been world famous, and those in attendance at the Forty-Fifth Annual Meeting of the Michigan State Medical Society in Bay City have a rare treat awaiting them.

THE REPORT OF THE CARNEGIE FOUNDATION

On another page we have copied for the benefit of our readers who would not otherwise see it, the report of the Carnegie Foundation for the Advancement of Teaching, in so far as it relates directly to our Michigan schools.

This report we feel is a long step in advance. There is no question that we have too many medical schools, and too few really good ones. Perfect candor must admit that Mr. Flexner, in making this study, and from his point of view, has been absolutely impartial. The schools in the United States and Canada which receive his unqualified endorsement could be counted on the fingers of one hand.

The criticism in some instances is of a minor defect, or a defect due to location, resources or something similar, while the school is honestly trying to do good work,—to make the most of its opportunities; but how often is it necessary to accuse the school of fraud?—of advertising more in its catalog than it gives to its students.

This report comes to us from the scientist whose ultimate effort is to secure the highest results possible from a teaching standpoint. The most of erudition combined

with the cultural broadening obtained in university associations is the end sought. Questions of time and expense are of minor import. The ideal condition striven for is a medical school fully equipped and an integral part of a liberal university, having its domicile within the confines of the university plant. More or less of a college education is urged as a preparation for the study of medicine, and in those cases where the university is located in a small town, as in Michigan, a clinical year in a hospital is proposed to supply the defects due to the necessarily small clinics.

This question seems to be ultra pedagogical. The student with a college training before entering upon his medical studies has already received the broadening and cultural education aimed at in the school as here proposed. He should be a developed man, ready to concentrate upon his professional training. The Hospital year following his course in medicine is greatly to be desired, but at what age will our future medical man begin his active practice? Will not some of his best years be sacrificed for the sake of completing a cultural education already as complete as that of our average university graduate? The older our young doctor is, the less time will he feel that he can devote to building up a practice. Will not the temptation of questionable methods and practices be strong?

Regarding sectarian schools the report is interesting: "We have considered the making of doctors and the increase of knowledge; allopathy, homeopathy, osteopathy have cut no figure in this discussion" (Page 156.)

"Scientific medicine therefore brushes aside all historic dogma. It gets down to details immediately. No man is asked in whose name he comes—whether that of Hahnemann, Rush, or some more recent prophet." (Page 157.)

"So far as sectarian creeds go, there is, of course, no reason why their schools should be elaborately equipped for scientific instruction." (Page 163.)

The treatment of osteopathic instruction is drastic. "Granting all that its champions claim, osteopathy is still in its incipency. If sincere, its votaries would be engaged in critically building it up. They are doing nothing of the kind." (Page 166.)

The truth, the justice, the force of this report is best evidenced by the number of schools which have already announced improvements.

OUR EDUCATIONAL BEST,—STILL INFERIOR

Educate—E-duce—Lead-out. Much of our educational training does not "lead out," but rather leads in—into a maze where time and energy are wasted in uncertain wanderings.

Man's heritage is a body, brains, and a term of years.

Educationally, body and brains are properly conserved, but what of the years? During the first twenty or thirty years of life,—the educational period,—many of them are wasted—wasted with a prodigality calling for protest; wasted as if years counted but as days; wasted not by the individual himself, but by the educational methods used.

There is an exasperating slowness in the movement of educational methods which should, and can be made time saving, and at the same time, more efficient. A sympathetic feeling comes over one for the passenger on a "stub" train "way down east," who, worn out by repeated stops and delays, called out: "Engineer, don't lose sight of the hearse."

The acquirement of knowledge ought not, need not, be slow or burdensome to

any normal youth, if antique methods be replaced by those that are living and inspiring. In the millions of cells apportioned to each normal brain there are never lacking a sufficient quantity that can be touched with the fire of inspiration, given the right methods of educational ignition. Why do not inventive genius and progressive thought work more along these lines? Is it possible that necessity, the "mother of invention," imagines she has passed the climacteric? Medical training is more in need of a change in methods than any other professional training. The medical student suffers more injustice than does any other. Although paying more to get a working knowledge of his chosen profession, he receives less practical proportionate value. He is buyer of watered stock.

It is safe to say that there comes to many a man who has struggled through the modern advanced and amplified medical course, a feeling of disappointment, when he indulges in retrospection—disappointment because all of value that he received while a student should have been received in less time, in a form more digestible, and more assimilable. Of no value was the ubiquitous cramming, indigenous to every school, evidenced in every examination, and taken as a gauge and measure of educational attainment.

A student may be a repository, crammed with medical bric-a-brac,—the so-called "educated fool" in any line of knowledge is just that. Some brains are veritable warehouses where storage is everything—production nothing. Storage warehouses are not machine shops. They contain no "go"; neither do they furnish an output. One cannot work intelligently with brain cells overloaded by a mass of facts, theories and suggestions offered with little or no thought of making the various integers an interdependent and correlated whole.

An illustrative incident comes to mind—A student, one of the crammed, fresh from one of the foremost medical schools in America, arrived at his home in due time. That night the door bell rang—a call for the doctor. The father, a medical practitioner, called the son. Did the son go?—No. He took his father aside and said, "Father, I am so crammed full of medical intelligence (?) that I am in danger of killing the man if I go to him." It took months and years to disintegrate and rearrange the mass which had been packed into his brain. The man's mentality was not at fault *per se*—the fault lay in the system of dealing with that mentality at the medical school.

The Japanese have a beautiful and instructive custom: One treasured work of art, a jewel, a piece of bronze, a carving in wood or ivory, or perhaps a simple flower, is brought out and allowed to dominate. It teaches and inspires with nothing to distract. In the Japanese department in the World's Fair at Chicago, was exhibited a bronze tablet which left a lasting impression upon those who saw it. There was no crowding together of numerous objects, to distract or confuse. Upon the tablet was engraved a field mouse, a tuft of grass, and a small shrub—nothing more—the Japanese unit idea in art. Perhaps this study of units rather than composites has been a factor in making Japan great. The world's great men have been those who were dominated by units rather than composites. They have worked successfully without loss of individuality or personality.

A medical man, looking back through the clarifying years to his college days, sees but a few instructors, although he may have listened to many; the few were his real instructors who furnished inspiration and enthusiasm; the many did not count—they kindled no spark. Of text books, a few stand out as his familiars, past or present.

These have for him a speaking knowledge. These have filled his cravings for a satisfying intelligence. The great mass have been a waste of wood pulp.

The near future ought to be more promising in general results. Medical progress demands teachers who have a pedagogical enthusiasm born in them; a gift to present and fix essentials; a wisdom ever present, to give the student the stimulus of elaborating detail. The time should speedily come when teachers of medicine will not be dependent upon private practice for a livelihood.

The student will attain far better results if training in special methods of memorizing be made a part of his academic curriculum—if special training in observation be exacted both before and after entering a medical school. The gift of observation, especially in a medical student, is priceless. Developed as it should be, it is that which makes the most efficient type of medical man.

That Agassiz's method of teaching by observation, in his classes in ichthyology, has never been fostered and made more common, is to be lamented.

There may be no "Royal road to learning," but the "Good Roads Department" in matters educational should provide something better than the obscure and erratic paths through which the average student must find his way.

C. B. STOCKWELL.

IN MEMORIAM

Dr. John F. Bennett, coroner of Detroit, died June 19 of apoplexy at Northville, where he had gone to attend the funeral of an uncle.

Dr. Bennett was born at Salem, Washtenaw County, Sept. 13, 1864, studied in the

district school and the South Lyon High School, then entered a drug store and became a registered pharmacist. Later he spent some time in the Medical Department, University of Michigan, and graduated at the Michigan College of Medicine and Surgery, 1892. He has ever since practiced in Detroit. He was a member of the Wayne County and Michigan State Medical Societies, and leaves a widow and two children, aged 14 and 17 years.

Dr. Charles E. Goodwin, of Shepard, a graduate of the University of Michigan, Department of Medicine and Surgery, 1883, and post-graduate of P. & S., Chicago, 1905, died recently at his brother's home in Ithaca, of pernicious anemia, aged 50. Dr. Goodwin was one year president of the Isabella-Clear County Medical Society and health officer of Coe Township. He was an active member of his County and the Michigan State Medical Societies.

Dr. Philander B. Taylor, of Clio, a graduate of the University of Michigan, Department of Medicine and Surgery, 1885, died at his home in April.

Dr. Willis S. Anderson, of Detroit, a graduate of Columbia University College of Physicians and Surgeons of New York, 1891, and for several years devoting his entire time to diseases of the Ear, Nose, and Throat, drowned in the Detroit river near Belle Isle, June 27th. Dr. Anderson was a member of the Wayne County and Michigan State Medical Societies, of the American Medical Association, and American Laryngological, Rhinological, and Otolological Society. He succeeded Dr. Geo. W. Moran as treasurer of the Michigan State Medical Society in Sept., 1909, and completed the term, declining re-election in January of this year.

MICHIGAN MATTER IN THE CARNEGIE FOUNDATION REPORT

Population, 2,666,308. Number of physicians, 4109. Ratio, 1:649.

Number of medical colleges, 5.

ANN ARBOR: Population, 14,734.

(1) UNIVERSITY OF MICHIGAN DEPARTMENT OF MEDICINE AND SURGERY. Organized in 1850. An integral part of the university.

Entrance requirement: Two years of college work, including sciences strictly enforced.

Attendance: 389, 45 per cent from Michigan.

Teaching staff: 63, of whom 22 are professors. The laboratory work is wholly in charge of full time instructors; but assistants in adequate number are lacking. The clinical teachers are salaried and owe their first duty to the school.

Resources available for maintenance: The school and university hospital are supported mainly by state appropriation. The budget of the school is \$83,000, that of the hospital, \$70,000. Endowments to the extent of \$175,000 carry a part of this charge. The income in fees is \$34,093.*

Laboratory facilities: Excellently equipped laboratories are provided for all the fundamental branches; the men in charge are productive scientists as well as competent teachers. There is a large library, a good museum, and other necessary teaching aids.

Clinical facilities: The school is fortunate in the possession of its own hospital, every case in which can be used for purposes of instruction. A liberal policy has largely overcome the disadvantages of location in a small town; for the clinical material is, in the departments of surgery, psychiatry, and various specialties, of sufficient amount; it is fair in medicine, increasing in obstetrics. The thoroughness and continuity with which the cases can be used to train the student in the technique of modern methods go far to offset defects due to limitations in their number and variety.

Date of visit: March, 1909.

(2) UNIVERSITY OF MICHIGAN HOMEOPATHIC COLLEGE. Organized 1875. An organic department of the university.

Entrance requirement: A four-year high school education.

Attendance: 80, 38 per cent from Michigan.

Teaching Staff: 26, of whom 15 are professors.

* Including laboratory fees paid by students registered in the homeopathic department; see (2).

Resources available for maintenance: The school and its hospital are supported by state appropriations. Its budget is \$16,400; that of its hospital, \$31,000. The income in fees is \$4515.

Laboratory facilities: The students receive their laboratory instruction in common with the students of the Department of Medicine and Surgery, despite the fact that there is a difference of two years of college work in their preparation.

Clinical facilities: The college has its own hospital of about 100 beds, where clinical instruction is given according to homeopathic principles.

Date of visit: March, 1909.

BATTLE CREEK: Population, 25,862.

(3) AMERICAN MEDICAL MISSIONARY COLLEGE. Organized 1895. An independent institution. A divided school, part of the work being given in Chicago, part at Battle Creek. No year is given entire at either place.

Entrance requirements: A four year high school course or its equivalent. Christians only are admitted. The Chicago teachers are all practitioners; the Battle Creek teachers are connected with the Battle Creek Sanitarium as laboratory workers or physicians.

Attendance: 75.

Teaching staff: 31, of whom 22 are professors, 9 of other grade.

Resources available for maintenance: Income from endowment of \$200,000 and fees.

Laboratory facilities: Anatomy is given in Chicago, where the student spends six weeks during each of the first three years and 30 weeks of the fourth year. The other laboratory courses are given at Battle Creek by the laboratory men and physicians connected with the Battle Creek Sanitarium. Indeed, the school and the sanitarium are inextricably interwoven. Students assist in the laboratories and treatment rooms. Their laboratory training thus takes on a decidedly practical character. But this has its disadvantages; for the sanitarium is devoted to the application of certain ideas rather than to untrammelled scientific investigation. Disciples rather than scientists are thus trained. The outfit is adequate for routine work, with abundant practical illustration in chemistry, pathology, bacteriology, and histology. In physiology and pharmacology the provision is slighter.

Clinical facilities: Of the last year, 30 weeks are spent in Chicago, where the students attend St. Luke's Hospital, one or two other institu-

tions, and a dispensary in the school building. For additional clinical teaching they depend on Battle Creek: in the sanitarium they see an abundance of chronic and surgical cases; acute cases are rare, and are accessible chiefly when physicians can ask students to accompany them on their rounds. The clinical laboratory is closely correlated with bedside work. By assisting in the sanitarium and out, the student gets an unusually close experience as far as it goes, but, once more, under the limitations of the therapeutic theories approved by the sanitarium authorities; a critical and investigative spirit is not cultivated.

The instructors of the divided parts of the school form practically separate faculties.

Date of visit: February, 1910.

DETROIT: Population, 393,536.

(4) DETROIT COLLEGE OF MEDICINE. Organized by a merger 1885. An independent institution.

Entrance requirement: A four-year high school diploma or its equivalent, actually enforced.

Attendance: 161, 70 per cent from Michigan (16 per cent from Canada).

Teaching staff: 104, of whom 25 are professors and 79 of other grade. There are no full-time teachers.

Resources available for maintenance: Fees only, amounting to \$22,000 (estimated).

Laboratory facilities: The school is provided with separate laboratories, each with ordinary routine equipment, for the following subjects: chemistry, anatomy, physiology, pathology, clinical microscopy, histology, and bacteriology. There is a slight additional equipment in the way of museum, charts, books, and other teaching adjuncts.

Clinical facilities: The school has access on the usual terms to several hospitals, staff members of which hold positions on the school faculty. The hospital service rotates every three months. At one hospital 100 available beds are perhaps equally divided between medicine and surgery; elsewhere surgery greatly predominates. Obstetrical work is mainly furnished by the Woman's Hospital and by an out-patient department just started. Post-mortems are hard to get.

The dispensary service is fair.

Date of visit: December 1909.

(5) DETROIT HOMEOPATHIC COLLEGE. Organized 1899. An independent school.

Entrance requirement: A four-year high school course or its equivalent.

Attendance: 34.

Teaching staff: 35, of whom 17 are professors, 18 of other grade.

Resources available for maintenance: Fees, amounting to \$3010 (estimated).

Laboratory facilities: These are wretched. There is an ordinary laboratory for chemistry; another, much less than ordinary, for bacteriology. The pathological room contained a few dozen specimens in utter disorder; the anatomical room contained a single cadaver. The teaching rooms are bare, except for chairs and tables; the building is poorly kept. The dean and the secretary have their offices "down town."

Clinical facilities: The school has access to Grace Hospital, the wards of which contain 56 beds, mostly surgical. Clinics are held two days weekly. The hospital authorities are well disposed towards the school, but the "boys don't take advantage of their opportunities."

There is a dispensary at the school building. It is incredibly bad. Prescriptions are found written on scraps of paper, unnumbered. There are no systematic records.

Date of visit: December, 1909.

General Considerations

MICHIGAN is fortunate in the possession of an alert state board, which enforces with vigor the high school requirement, and may perhaps be counted on to advocate an advance of the state practice standard to meet the educational standard of the state university. As the state furnishes a thoroughly admirable education at relatively slight expense, there is no reason why it should keep the practice of medicine open to low-grade physicians, whether trained within or without its borders. Sound policy would quickly close the two homeopathic schools, and, in all probability, the Detroit College of Medicine. To the credit of the latter institution, however, be it said that its officers have heartily co-operated with the state board in the enforcement of a genuine high school standard.

The real problem now agitating the state concerns the medical department of the state university at Ann Arbor. The defects of Ann Arbor as the seat of a medical school have been touched on in these pages. There is no question that, if the entire state university were at Detroit, the medical department would be better off. But this is by no means equivalent to urging

that it be detached or split. The entire detached school is now on trial at Galveston, Indianapolis, New York. It would be well to watch the outcome of those experiments before trying any others. It is already clear that if a university department of medicine is to be genuinely productive, the remote department requires most generous support, for much that is provided at the seat of university for other departments will have to be duplicated. To create the university spirit in a distant institution is almost like developing a second—though much less expensive—university.

An alternative suggestion looks to the removal to Detroit of part or all of the clinical instruction. If part is removed, clinical teachers must oscillate backward and forward between Detroit and Ann Arbor. Where would the productive clinical teacher have his workshop? Nowhere, in all likelihood. If the entire clinical department is removed, the split school faces the conditions we encounter in Nebraska, California, and Kansas. Once more, let us wait for the successful operation of one of these divided schools before multiplying unpromising experiments. Meanwhile, the state can by increased liberality almost at will develop the medical clinic of the university hospital. Agitation in favor of splitting or removing it may proceed from several considerations,—it is not inspired by sound scientific or educational ideas.

For, Ann Arbor has itself proved what the experience of Germany had previously demonstrated,—that a school of medicine can be developed in a small university town. The ideals are there; the contiguous departments are there; there is an absence of the distractions which have thus far proved so damaging to city clinicians. A faculty of distinction, with a hospital well equipped for the care of the sick, and for teaching and research, can successfully overcome the most serious difficulties of the situation. The problem can be solved by intelligent organization and liberal support. Gaps may indeed remain in the student's experience. But if he has been well drilled in technique and method, his defects will be readily cured by a hospital year. The solution for Michigan may therefore come, as has been proposed, through an effective affiliation of the hospitals of the state with the school of medicine of the state university. The hospitals would profit by a connection of this kind, and they would assist by becoming factors in the education of the future physicians of the state.

MINUTES OF HOUSE OF DELEGATES OF A. M. A.

The Sixty-First Annual Session of the American Medical Association was held at St. Louis, Mo., June 6-10, 1910. The registration was 4,070, this being the third meeting of the Association in point of size and only surpassed by the Boston session in 1906 and Chicago session in 1908. The weather was practically perfect and the local arrangements admirable.

The House of Delegates met on Monday morning in the auditorium of the St. Louis Medical Society. The president, Dr. W. C. Gorgas, U. S. A., read his address in which the work of the Association was commended and a number of suggestions made. The report of the General Secretary showed that during the past year 289 members had died, 1937 had resigned, 1031 had been dropped, and 95 had been removed from the rolls on account of being reported as "not found," making a total loss of 3352. During the year 3593 new members were added, making a membership on May 1, 1910, of 34,176. The application of the Medical Association of the Isthmian Canal Zone for recognition as a constituent association was presented. The death of ex-President Herbert L. Burrell was commented on. The Secretary presented a tabulation showing the membership in the constituent state associations amounting to 70,146. The history of the secretaryship and its connection with the editorship of the JOURNAL was reviewed. Doctor Simmons presented his resignation as general secretary and asked that it be accepted. The report was referred to the Reference Committee on Reports of Officers.

The report of the Board of Trustees showed an encouraging progress in all lines of Association work, the work of the Council on Pharmacy and Chemistry, Council on Medical Education, Committee on Medical Legislation, Committee on Nomenclature and Classification of Diseases and the Committee on Ophthalmia Neonatorum being especially commended. The trustees recommended that the report of the Committee on Organization of a Council on Health and Public Instruction be carefully considered. The agenda to the trustees report included a report from the subscription department showing the average weekly circulation of the JOURNAL for 1909 as 55,361. The treasurer's report showed a surplus in the treasurer's hands on Jan. 1, 1910, of \$163,340.72. The auditor's

report showed property to the amount of \$172,081.86 and total assets of \$399,462.16. The report was referred to the Reference Committee on Report of Officers. The report of the Committee on Medical Legislation was presented by Dr. C. A. L. Reed, of Cincinnati, chairman. The year's work on national and state legislation was reviewed. Doctor Reed presented his resignation as chairman of the committee. The report was referred to the Reference Committee on Legislation and Political Action. Dr. A. D. Bevan, Illinois, presented the report of the Council on Medical Education, stating that during the past year the second tour of inspection of medical schools of the country had been made and submitting as a part of the report a classification of medical schools into three classes: (a) acceptable, (b) needing certain improvements to make them acceptable and (c) those which would require complete reorganization. The report of the Council was referred to the Reference Committee on Medical Education.

At the afternoon session, the Board of Public Instruction and the director of the post-graduate work submitted their reports. Dr. F. Park Lewis submitted the report of the Committee on Ophthalmia Neonatorum, reviewing the work of the past year and recommending that its work be enlarged so as to include all preventable causes of blindness, also that renewed efforts be made to have all births reported promptly so as to make possible more thorough work in the prevention of blindness. The report was adopted and the committee continued.

Dr. H. O. Marcy, Massachusetts, submitted report on Davis Memorial Fund, showing total contributions of \$2,771.34. Doctor Marcy presented his resignation as chairman and Dr. Billings presented his resignation as secretary of the Davis Memorial Fund. The report was referred to the Board of Trustees. The Committee on Nomenclature and Classification of Diseases reported progress. The Council on Defense of Medical Research reported the publication during the past year of thirteen pamphlets written by experts in the various fields and prepared for general distribution. The Council has also given much material to the daily press. The formation of a society of laymen for the promotion of medical research is being considered.

The reports of the following committees were presented: Patents and Trademarks, Uniform Regulation of Membership, Elaboration of the Principles of Ethics and the United States Phar-

macopeia. The Committee on Anæsthesia reported progress. It finds itself as yet unable to submit full and final reports for publication but reaffirms the finding of the Committee in 1908 that for general use ether is to be regarded as the safest anæsthetic. Major M. W. Ireland, U. S. A., presented a report from the Committee on Insignia, recommending the adoption of an official button showing the knotted rod and serpent as the insignia of the Association. Dr. Edward Jackson, Colorado, presented a report from the Committee on the Establishment of a committee to draw up a plan for a corporate body to receive and administer funds for the relief of disabled physicians and to establish a sanatorium for physicians suffering from tuberculosis. The report was referred to the board of trustees. President Gorgas submitted a report from the Committee on Memorial to Medical Officers of the Civil War, showing that three members had been appointed and that the two remaining positions would be filled by the appointment of one volunteer surgeon from the Union army and one from the Confederate army. After the presentation of a number of resolutions, which were referred to appropriate committees, the House of Delegates adjourned until Tuesday.

The House met Tuesday afternoon with the newly installed president, Dr. William H. Welch in the chair. Dr. Frank B. Wynn, Indiana, presented the report of the Committee on Scientific Exhibit, recommending the preparation of cheap, compact and complete exhibits for the education of the public on all the problems of public health and comfort. Dr. Alfred Stengel, of Pennsylvania, presented the report of the Committee on Scientific Research, showing that three grants of \$200 each had been made for the current year as follows: Dr. R. M. Pearce, New York; Dr. Gerald B. Webb, Colorado; and Dr. E. C. Rosenau, Chicago. The Committee on Organization of a Council on Health and Public Instruction recommended that the Committees on Organization, Medical Legislation, Public Instruction and Defense of Medical Research be abolished and that a Council of five, to be known as the Council on Health and Public Instruction, be created. This report was referred to the Reference Committee on Amendments to the Constitution and By-Laws. The Reference Committee on Sections and Section work reported recommending the organization of a Section on Genito-Urinary Diseases with the following officers to serve for the coming year: Chairman, W. T. Belfield, Chicago; Vice-Chairman, James

Pederson, New York; Secretary, Hugh Young, Baltimore. The Committee recommended that sections on Physical Forces in Medicine and on Hospitals be not established at present. The report was adopted. The Reference Committee on Medical Education endorsed the work of the Council on Medical Education and recommended that the rating and classification of medical schools as determined by the Council should be made public and that the Council be instructed to continue its investigations. The classified list of colleges was presented as a part of the Committee's report.

The Reference Committee on Reports of Officers recommended that the request of Dr. Simmons regarding his resignation as general secretary be respected and that his resignation be accepted in order that he might devote himself exclusively to the duties of editor of the *Journal of the American Medical Association*. This report was adopted. The Reference Committee on Miscellaneous Business recommended that the reports of the Committees on Pharmacopeia, Nomenclature and Classification of Diseases and Miscellaneous Business be accepted and the committees continued. Dr. J. N. McCormack presented the report of the Committee on Organization, reviewing the work done for a department of public health and presenting the following resolutions:

Resolved, That the President be, and is hereby, authorized to appoint a committee of seven members, which shall be charged with the duty of framing a bill for a National Department of Health, to be presented to the next session of Congress in December, and that this committee shall consider and determine all matters and policies relating to national health legislation, and may invite the cooperation and cooperate with other organizations having the same purpose in view.

Resolved, That the principles of the Owen bill, having for its object the creation of a National Department of Health, now pending in the Senate, and similar bills introduced in the House by Representatives Simmons, Creger and Hanna, be, and are hereby, heartily approved by this Association, and the cordial thanks of the medical profession of the United States, officially represented by it, are hereby tendered to Senator Robert L. Owen, Irving Fisher and their co-workers for their able and unselfish efforts to conserve and promote the most important asset of the nation, the health and lives of its women, its children and its men, properly understood as

the greatest economic question now confronting our people.

The members of this Association stand for pure food, pure drugs, better doctors, the promotion of cleaner and healthier homes, and cleaner living for individuals, for the state and for the nation. We believe this to be held as equally true by the reputable and informed physicians of all schools or systems of practice.

We welcome the opposition of the venal classes long and profitably engaged in the manufacture of adulterated foods, habit-producing nostrums and other impositions on the people—to the extent of hundreds of millions of dollars annually—and express our sympathy for the well meaning men and women who have been misled and worked into hysterics by the monstrously wicked misrepresentations of a corrupt and noisy band of conspirators and who are being used as blind instruments to enable them to continue to defraud and debauch the American people.

Medical science is advancing, especially on its life-saving side, with a rapidity unknown to any other branch of human knowledge. It is known of all men that our members in every community in the United States are unselfishly working day and night, instructing the people how to prevent tuberculosis, typhoid fever and the other diseases from which physicians earn their livelihood. Therefore, we welcome and will wear as a badge of honor the slanders of these unholy interests and their hirelings.

These resolutions were later on unanimously adopted by rising vote.

Dr. T. D. Tuttle, Montana, moved the appointment of a committee to prepare suitable resolutions in regard to the death of Dr. Ricketts, after which the House of Delegates adjourned until Wednesday afternoon.

At the Wednesday session, Dr. Rosalie Slaughter Morton, New York, was granted the privilege of the floor to present the report of the Public Health Education Committee. The Reference Committee on Legislation and Political Action commended the work of the Committee and Bureau of Medical Legislation and recommended that Dr. Reed's resignation be accepted with an expression of appreciation of his untiring, loyal and faithful services. The Reference Committee on Hygiene and Public Health commended the work of the JOURNAL in the direction of a sane Fourth of July. The Reference Committee on Report of Officers, submitted a supplementary report on Dr. McCormack's work, endorsing his recommendation of the appointment of a special

committee of seven charged with the framing of a bill for a National Department of Health to be presented at the next session of Congress. Following the adoption of this report, Dr. Guthrie, Pennsylvania, moved the adoption of the resolutions presented by Dr. McCormack. This motion was unanimously carried. The Committee on Awards recommended that a gold medal be given Dr. Claude A. Smith, Atlanta, Ga., for an exhibit of experimental researches on Hookworm Disease and that certificates of honor be awarded to the following exhibitors: University of Minnesota, St. Louis University, St. Mary's Hospital, Rochester, Minn., St. Louis City Hospital, Indianapolis Department of Public Health, University of Michigan, Dr. Honwink, St. Louis, Special Committee on Prevention of Blindness, New York, Northwestern University, Chicago, St. Louis Medical History Club. The following resolutions were then presented and adopted regarding the death of Dr. H. T. Ricketts.

WHEREAS, Howard Taylor Ricketts, a member of the American Medical Association, lost his life on May 3, 1910, from typhus fever, contracted while engaged in an investigation of that disease in the City of Mexico, and

WHEREAS, He sacrificed himself in the study of a preventable disease and in the interests of the health and lives of the human race; and

WHEREAS, His masterly attainments as a scientific worker in this and other fields rendered his life of inestimable worth to the medical profession and the world at large; therefore, be it

Resolved, That the American Medical Association, in convention assembled, herewith express its high appreciation of the ideals, the efforts and achievements of this brilliant investigator, and its deep sorrow at the loss of a most valued and cherished member; and

Resolved, That we herewith express our sorrow in the death of Dr. Conneffe, of Ohio, who lost his life as a result of infection with typhus fever while working with Dr. Ricketts in Mexico City; and

Resolved, That these resolutions be spread on the minutes of this Association and published in THE JOURNAL.

After the election of a number of associate members and the presentation of miscellaneous resolutions, which were referred to appropriate committees, the House adjourned until Thursday morning.

A special meeting of the House was held on Thursday morning to consider the report of

the Reference Committee on Amendments to the Constitution and By-Laws. A large number of amendments, consisting mainly of verbal modifications were adopted. The last meeting of the House of Delegates was held on Thursday afternoon, the election of officers being the first order of business. The following officers were elected: President, Dr. John B. Murphy, Chicago; First Vice-President, Dr. E. E. Montgomery, Philadelphia; Second Vice-President, Dr. R. C. Coffey, Portland, Ore.; Third Vice-President, Dr. W. G. Moore, St. Louis; Fourth Vice-President, Dr. H. L. E. Johnson, Washington, D. C.

When nominations for general secretary were called for, Dr. I. C. Chase, Texas, nominated Dr. Simmons for reelection in a speech which invoked repeated rounds of applause. In spite of the fact that his resignation had been presented and accepted it was evident that the House of Delegates was determined to reelect him. After a large number of delegates from different states had expressed their views, Dr. Simmons was unanimously reelected. Dr. Frank Billings was nominated for reelection as treasurer by the Board of Trustees and was elected. The following trustees were then elected to serve until 1913: Dr. W. W. Grant, Denver, Colo. (reelected); Dr. C. E. Cantrell, Greenville, Tex. (reelected); Dr. Frank J. Lutz, St. Louis. The president appointed the following as members of standing committees, the appointments being confirmed by the House of Delegates:

The Council on Medical Education—Dr. George Dock, St. Louis, to succeed Dr. E. E. Southard, to serve until 1915.

Council on Health and Public Instruction—Dr. H. M. Bracken, Minneapolis, to represent public health; Dr. W. B. Cannon, Boston, to represent defense of medical research; Dr. Henry B. Favill, Chicago, to represent public instruction; Dr. J. N. McCormack, Bowling Green, Ky., to represent organization, and Dr. W. C. Woodward, Washington, D. C., to represent legislation.

The Reference Committee on Sections and Section Work recommended the election to honorary membership of Dr. Alfred Saenger, Hambury, Germany; Mr. J. Herbert Parsons, F. R. C. S., London, England; and Dr. James H. Honan, Berlin. The Board of Trustees reported regarding the publication of special journals on surgery and pediatrics and after extended discussion the matter was referred back to the Board with full power to act.

Invitations for 1911 were presented from Los

Angeles, Cal., and Buffalo, N. Y., and, on ballot, Los Angeles was chosen, 61 to 58.

The Reference Committee on Hygiene and Public Health presented a report condemning the multiplication of optometry boards and the appointment of non-medical and unqualified persons thereon, recommending the formation of a committee on the prevention of blindness and authorizing the appointment of a committee to cooperate with the Department of Commerce and Labor with a view to establishing proper visual standards and tests for pilots. Following the adoption of resolutions of thanks to the Missouri State Medical Association, the St. Louis Medical Society, Governor Hadley, Doctor

Dorsett and his local committee of arrangements, the House of Delegates adjourned *sine die*.

The attendance of the House of Delegates was large, 133 delegates being registered. An enormous amount of legislative work was done, the bulk of which was transacted in committees. The revision of the constitution and by-laws and the reorganization of the standing committees will greatly strengthen the work of the Association and increase the possibilities for improved work. Taken as a whole, it was one of the most important sessions which the Association has held and the prospects for the coming year are better than ever.

COUNTY SOCIETY NEWS

CALHOUN

The second quarterly meeting of the Calhoun County Medical Society was held at Ceresco, June 21, 1910, with twenty-four members present, and Dr. Victor C. Vaughan Jr., of Detroit, guest of honor.

The first number on the program, "Diphtheria," by Dr. Gubbins, elicited very active discussion. The latter had more particularly to do with the use of anti-toxin, both as to the therapeutic and prophylactic value.

Dr. Vaughan's paper was entitled "Tuberculin as an aid to Diagnosis in Pulmonary Tuberculosis." Dr. Vaughan took a very optimistic view of the value of anti-toxin as a diagnostic aid in the pulmonary form of tuberculosis.

Dr. Lewis Hodges gave a paper on "Abortion," outlining some of the "pleasant" conditions confronting the country practitioner.

Drs. Annie Durrie and A. A. Hoyt, of Battle Creek, were elected as members of the Society.

By a unanimous vote of the Society, the President and Secretary were instructed to purchase a suitable present to be presented to the infant son of Dr. and Mrs. Gubbins, as a token of the esteem in which they are held by the members of the Society. Dr. Gubbins has made this June meeting an annual love feast and has also been the most jovial of hosts at this gathering.

(A silver table set was later chosen for the youthful member of the Gubbins' family circle.)

The committee on Necrology reported upon

the death of Dr. C. G. Vary, and the Society adopted the resolution of respect edited by the Committee.

Adjournment was taken to Marshall on September 6th.

After the meeting all sat down to one of the bounteous feasts which have made this meeting noteworthy through the generosity of the host, Dr. Gubbins.

A. S. KIMBALL, *Secretary*.

GRAND TRAVERSE

The regular monthly meeting of the Grand Traverse County Medical Society was held Wednesday evening June 15, in Dr. Wilhelm's office. Twelve members were present.

Minutes of the last meeting were read and approved. After the usual business was transacted the following papers were read:

Homeopathic Materia Medica by Dr. L. E. Bartlett.

Aneurism, by Dr. O. E. Chase.

Acute Articular Rheumatism, read by Dr. Wilhelm for Dr. Brownson who was unable to be present.

Dr. O. E. Chase presented an interesting case of Aneurism which was probably congenital in origin.

A committee was appointed to make arrangements for a picnic in the near future.

R. E. WELLS, *Secretary*.

HURON

The Huron County Medical Society held its regular quarterly meeting and "Auto Outing" on July 11, at the beautiful summer resort, Pointe aux Barques, on Lake Huron. Dr. Guy L. Connor of Detroit, read an instructive paper on "Acute Poliomyelitis," and Dr. V. C. Vaughan Jr., of Detroit, read an equally interesting article on "Tuberculin as an Aid in the Diagnosis of Pulmonary Tuberculosis." Both papers were thoroughly discussed. Dr. Herrington showed two surgical and pathological specimens from intestinal obstruction caused by volvulus and carcinoma respectively.

D. CONBOY, *Secretary.*

IONIA AND MONTCALM

Mid-Summer Meeting of Ionia and Montcalm County Medical Society.

Ten days before the meeting notices were sent to the physicians of the two counties above named which read as follows:

"Get busy, Doctor, for the annual mid-summer meeting and basket picnic, to be held this year in the Asylum Grove, South Ionia, June 30th, 1910. This invitation extends to you and your wife and daughters and the little doctors. Bring well-filled baskets and come and have a good time.

"Dr. O. R. Long, Supt. of the Michigan Asylum at Ionia, has extended an invitation for us to meet with him at the Asylum Grove and to visit the Institution in its various departments. This will be a rare treat for those who have not already made this visit, for this is one of the world's model institutions. Dr. Long and his able corps of assistants will show you every courtesy, and take real pleasure in your intelligent inspection. The regular program will reach you later."

The day was a typical June day. Autos were in waiting so that all coming by trains were met at depots and conveyed out to the grove. The attendance was the largest we have yet had, and everything passed off pleasantly. Owing to the hot weather the visit to the Asylum was made after the banquet. The banquet was a most delightful affair; presided over by Dr. and Mrs. Long, surrounded by the ladies of the two societies. Our meeting place was a beautiful new pavilion or bungalow, open on all sides yet commodious enough to seat comfortably one hundred persons. The toasts were fine. Dr.

Ralph Spencer of Grand Rapids was with us to cheer and encourage with words of praise and commendation.

The visit to the Institution was truly a red letter day to those who saw it for the first time. The magnificent buildings like lordly castles set well back from the brow of a lofty range of hills command a panoramic view of the city of Ionia and of the Grand River valley that for scenic beauty is unsurpassed. The interior of the buildings are all that art and wealth and scientific design can provide. The apartments in each department are perfect. The walls and polished floors so smooth a fly could hardly hold to them, if he were so fortunate as to gain admittance. Then, too, the farmers who live in the valley below and the dairy and its herd of Holsteins were subjects of the closest scrutiny and unstinted praise. The verdict of all was, "This is the best meeting yet," and a most hearty vote of thanks was tendered Dr. Long for the enjoyable time he had provided for us.

The next meeting will probably be held at Long Lake. This is accessible only by motor and carriage, so that we can make a full day and not have to be hurried by railway time tables.

C. S. COPE, *Secretary.*

KALAMAZOO ACADEMY OF MEDICINE

The Kalamazoo Academy of Medicine held its June meeting on the 14th of the month at Allegan, Mich., as the guests of the physicians of that city. The following program was carried out:

1. Symposium on Scarlet Fever.

(a) Etiology and Diagnosis, Dr. A. L. Robinson, Allegan.

(b) Throat and Ear Complications, Dr. E. P. Wilbur, Kalamazoo.

(c) Relation of Scarlet Fever to Public Health, Dr. A. H. Rockwell, Health Officer, Kalamazoo.

These papers covered especially the new work coming under each heading, and treatment of the different phases of the disease. The third part of the symposium brought out an especially interesting discussion as there were several health officers and ex-health officers present. The topic was peculiarly timely as this disease has been unusually prevalent in the district covered by this society.

2. The Tonsil as a Portal of Entrance for Tuberculous Infection, in Tuberculous Glands

of the Neck, Dr. R. C. Canfield, Ann Arbor.

This was a discussion of the results of observations which Dr. Canfield has made on over a hundred cases of tuberculous cervical adenitis which have come under his care. He gave many case histories with the microscopical findings of the tissues removed from the cases, which seemed to show that this sort of infection frequently arises as a secondary process from an infected tonsil.

He emphasized the importance of the most radical removal of suspicious tonsils and a close

by patients, was turned over to the service of the Academy. The charming landscape surrounding the building, the restfulness of the location, the convenience of arrangement, the completeness of equipment and the elegance of the furnishings and finish make this without any doubt one of the most charming small hospitals in the whole state. The degree of excellence of these appointments was a surprise to most all present.

Another surprise came at the noon hour when instead of repairing to the city hostleries



JOHN ROBINSON HOSPITAL, ALLEGAN, MICH.

examination of the same. He declared that he has frequently found tubercles in the fragments of tonsil stumps where tonsillectomy was supposed to have been complete. In those cases where a distinct enlargement of the "tonsillar lymphatic gland" in the neck was present, he advised removal of the gland as well as the tonsil. Contra, he advised that in operating cervical lymphatic glands, the tonsil be also removed in order to remove all of the infective tissues.

Discussion by Drs. A. W. Crane, E. P. Wilbur, J. H. Van Ness and C. L. Bennett.

A committee was appointed consisting of Drs. E. J. Bernstein, A. W. Crane and Ward Collins to act with reference to securing more medical journals and books for the Academy, the same to be kept in the library and used by physicians.

The meeting was held in the John Robinson Hospital, where hospitality was meted out to those present in an unusually generous fashion. The whole building, where not actually occupied

for lunch, the entire number of guests were invited to the spacious back porch and there served with the following menu as the compliments of Mrs. Robinson, and some friends who assisted:

Combination Salad		
Saratoga Wafers		
Veal Loaf with Creamed Potatoes		
Hot Pocketbook Rolls, Buttered		
Pickles	Jelly	Coffee
Strawberry Shortcake with Country Cream		
Jersey Milk		

The program was up to the standard.

Socially this was the best meeting of the year.

Several physicians who practice within the Academy's territory and yet who have not become members, were present; some having never been at an Academy meeting before.

Several new applications for membership were received.

C. E. Boys, *Secretary*.

MUSKEGON-OCEANA

Regular meeting of the Muskegon-Oceana County Medical Society was held at the residence of Dr. G. F. Lamb, at Pentwater, Friday July 1, 1910, at 6:00 p. m.

In the absence of the president, Dr. J. F. Denslow, Dr. Griffin, Vice-President, presided at the meeting.

Members present: Drs. G. F. Lamb and W. E. Dockry of Pentwater; Drs. Jacob Oosting, F. B. Marshall, G. J. Hartman, Geo. S. Williams, A. A. Smith, I. M. J. Hotvedt, R. G. Olson, W. P. Gamber, W. A. Campbell, V. A. Chapman, and J. T. Cramer, of Muskegon; Drs. W. L. Griffin and J. D. Buskirk of Shelby; Dr. VanderVeen of New Era and Drs. L. P. Munger and H. B. Hatch of Hart.

Minutes of previous meeting read and approved as read.

Dr. Lamb read a paper on "Gall Stones and Auto-Intoxications," showing a clinical case. Dr. Dockry opened the discussion, followed by Drs. F. B. Marshall, R. G. Olson, Geo. S. Williams, A. A. Smith, I. J. M. Hotvedt, and W. P. Gamber.

The committee appointed to investigate and report upon the desirability of incorporating the Society made partial report and requested more time for investigation. Dr. Smith moved that the Committee be given more time. Seconded and carried.

The meeting adjourned at 7:15 p. m.

V. A. CHAPMAN, *Secretary*.

OTTAWA

The July meeting of the Ottawa County Medical Society was held July 12, at the Council Rooms, Holland, Mich.

Dr. A. Leenhouts of Holland, read a paper on "The Horse and the Motor Vehicle in the Doctor's Practice." The Doctor took up the subject from a practical viewpoint and gave some very interesting figures. He compared the horse with the motor with the idea of, first, economy, and second, efficiency. The subject of economy was taken up in a very systematic manner.

First was considered the initial cost; second, the maintenance; third, the durability. In regard to the initial cost he placed a runabout at \$1,000 and the horse at \$300. These

figures were as a practical investment only. The question of pleasure for members of the family and friends, and also speed was eliminated. He asserted that no physician was justified in owning and driving a touring car in his practice on the grounds of economy, as the upkeep and maintenance is double that of a runabout. Under the head of maintenance he stated that it would cost \$4.50 per week for either the horse or auto if we consider 15 miles a day an average mileage for both. This, of course, confines their use to the necessary calls in the Doctor's practice. Under the head of durability a runabout at the above cost was estimated to last six years, and the horse twelve years. Both of these figures are purely arbitrary, but for the sake of comparison are fair. To resume we have the figures as given:

Per year	Runabout	Horse
Maintenance	\$225	\$225
Depreciation	166	25
Total	\$391	\$250

Under the head of efficiency the Doctor considered the horse as 100% and the runabout 75%. The discussion which followed the paper was unanimously in favor of the horse as being the most practical and economical.

Favorable mention was made of the number of serious cases which were apparently saved by prompt services through the aid of the auto, but no mention was made of the large number of calls saved to the physician by his promptness in calling before the patient had time to recover and telephone him his services were not required.

Dr. P. J. DePree of Olive Center read a paper on "Migraine." The Doctor showed a very thorough knowledge of his subject and gave practically all the information available on the etiology of this common ailment. The efficiency of any treatment ever given by him in his practice was as doubtful as the etiology of the cases.

Dr. DePree is a sufferer from migraine, and his paper showed the deep personal interest of the author. The discussion was decidedly pessimistic in regard to the efficiency of any form of treatment, and until we learn more of the etiology of this ailment, all treatment must be in the form of relief.

A motion was made and passed to omit the regular August meeting, and the next regular meeting will be held in Holland, Sept. 13.

GEO. H. THOMAS, *Secretary*.

TUSCOLA

The Tuscola County Medical Society met at Millington, June 20, with twenty-seven members and seven visitors in attendance. Two cases were presented for clinic. A case of extensive burn of right arm and chest by Dr. MacKenzie of Reese and a case of well developed rickets by Dr. Bishop of Millington.

Dr. A. P. Biddle of Detroit, presented the subject of "A Consideration of Diseases of the Skin Due to the Trades, Occupations, Clothing and Fashion" in a very practical and beneficial manner. The discussion was general and enthusiastic.

Dr. David Inglis of Detroit met a hearty reception in his discussion of "Problems of Blood Pressure in Nervous Affections" and impressed all to make a more careful study of blood pressure in general practice. Since the clinical use of blood pressure apparatus, questions of blood pressure are being worked out, and we are now coming to realize that the revelations of the blood pressure apparatus are by no means as simple as was at first thought. As far as the pressure is concerned, that depends upon the contractile power of the heart, the relative size and elasticity of the arteries, and, by no means least important, the condition of the muscular coat of the arteries. It is a mistake to consider the arteries as simply elastic tubes; the muscular coat is of profound importance, and for this reason nervous conditions may and do greatly alter the muscular contractility of the normal artery, but the same causes which tend to produce hypertrophy of the heart tend to increase the thickness and strength, and, therefore, the contractile power of the arteries. Evidently the muscular coat of the arteries serves to carry the blood forward in a peristaltic way, but the hypertrophied muscular coat is liable to spasmodic contraction which may lessen the flow of blood through the artery and thereby greatly increase arterial tension.

In the problems of nervous affections this contractility plays no small part. It is the explanation of many cases of angina pectoris or certain passing cerebral phenomena accompanied by temporary changes in brain function—ideation, consciousness, sensory and motor functions. The problem in many of these cases is not a problem of a threatening organic brain lesion but the problem of correcting abnormal muscular tonus.

There is, however, another factor in this matter of so-called blood pressure not to be overlooked. The artery whose walls have been thickened either by connective tissue formation, marked increase in the muscular coat, or by deposit of lime salts, becomes thereby less compressible. Now the blood pressure apparatus registers compressibility, and the tension of the blood within the artery is often of much less importance in establishing a so-called high blood pressure, than is the incompressibility of the artery itself. In an artery with extensive deposits of lime salts compressibility is very small. The manometer will show a tremendously high blood pressure, while, as a matter of fact, the tension in the artery may be quite low. These incompressible arteries bring about nervous troubles, largely through the narrowing of the calibre of the artery, a narrowing which is very little influenced by any treatment. And they also bring about an impaired blood supply by their lack of elasticity. If the patient presents phenomenally high pressure record and a thorough relaxation is brought about the pressure register may drop 30 to 40 mm., but it cannot be made to drop below that. The remaining record is the record of incompressibility.

Therapeutically the letting up on arterial tension, in so far as it depends upon muscular spasm in the arterioles, will respond to drugs which relax the involuntary muscular spasms. Morphine and the bromides are of great value. As a matter of fact, in puerperal convulsions in angina pectoris, morphia has established its position. Veratrum viride and aconite act well. We have been using the nitrites, but the trouble with nitroglycerine, erythrol tetra nitrate and nitrate of amyl is that they do act but their effect is exceedingly brief. Practically, I have found that the old sweet spirits of nitre, or the liquor ammonia acetate are nitrites that can be given freely and whose action is much more prolonged and satisfactory. Our medical forefathers had no pressure gauging apparatus, but they had a singular clinical insight and used these old remedies to accomplish precisely these results.

Dr. B. S. Pennington and Dr. L. D. Harrison were elected to membership in the society.

The next meeting is to be held at Vassar, the second Monday in August.

W. C. GARVIN, *Secretary*.

ST. CLAIR

In April, Dr. A. E. Thompson, of St. Clair, read a paper before the St. Clair County Medical Society detailing his experiences in defending a suit for \$25,000 damages, charging false imprisonment in an insane asylum, which was brought jointly against the Doctor and ex-Sheriff Moore.

Miss Alexander, the plaintiff, was a professional nurse, who had nursed for Dr. Thompson, with whose work the doctor was pleased and whom he had befriended many times, even to making her matron of his private hospital. This position she filled acceptably for a year when the Doctor began to notice delusions of persecution, irritability, etc., which progressed to such a stage that it was necessary to send her home to her parents in St. Thomas, Ontario.

While in St. Thomas she was properly and legally committed to an insane asylum at London, Ont., her mother and sister being prompted to this course by her attempting to commit suicide.

A while later Miss Alexander appeared at Dr. Thompson's office and became abusive. From there she went to the Hospital, discharged the nurses and terrorized the patients. She created such a disturbance that the Doctor telephoned the London Asylum about her, finding that she had been out on probation for a few weeks. After consultation with the Medical Supt. of the Asylum, Miss Alexander was arrested on complaint of Dr. Thompson and reconfined in the London Asylum.

Several years later suit was brought against Dr. Thompson and Mr. Moore for \$25,000 damages. Dilly-dallying tactics were employed and the Doctor charges that when the suit came up for trial he found that for his plea had been substituted another, written by a Detroit firm, which did not set up the defense of insanity in the plaintiff, thus leaving him no ground for defense against charges of mistreatment and abuse, and immorality set up by the attorneys for the defense. Judge Snow later suspected something wrong and admitted the evidence of insanity of the plaintiff, whereupon the Doctor was entirely vindicated, and a verdict of "no cause for action" ordered.

The Doctor was certainly unfortunate in his experience with attorneys whom he names in his paper, spelled without capitals, but underscored.

NEWS

Dr. Beverly D. Harison of Detroit, has received from the University of Michigan the degree of Master of Arts in recognition of his successful efforts in raising the standard of Medical Education in the State of Michigan.

Dr. Henry J. Pyle, a graduate of the Detroit College of Medicine, 1907, and located at 803 Grandville Ave., Grand Rapids, was married on June 9 to Miss Frances VanZoeren.

The Medical Department of the University of Pennsylvania has announced recently certain changes in the personnel of its teaching staff to take effect September 1910.

Dr. David L. Edsall will fill the Chair of Theory and Practice of Medicine from which Dr. James Tyson has resigned. The Chair of Pharmacology and Therapeutics will be filled by Dr. A. N. Richards, formerly of Northwestern University. Dr. Alonzo E. Taylor, formerly of the University of California, will occupy the Chair of Physiological Chemistry which has a \$100,000 endowment. Dr. Richard M. Pierce of Bellevue, has been appointed Professor of Pathology and will also have charge of the Department of Research Medicine, recently established with an endowment of \$200,000. Dr. Allan J. Smith, the present Dean of the school, will have the Chair of Comparative Pathology and be at the head of the newly instituted courses in Tropical Medicine. Dr. Paul Lewis, who will have charge of the laboratory of the Phipps Institute for the Study, Prevention and Treatment of Tuberculosis, now an integral part of the University, has been elected Assistant Professor of Pathology.

The Wayne County Medical Society has purchased the Marvin Preston house at 33 East High Street, with a lot 60x130 feet. The rooms are large and spacious, and will be remodeled this summer, being ready for occupancy Sept. 1st, when the Society resumes its meetings, after the summer vacation.

Dr. Ben. Brodie has donated his father's fine collection of rare medical books, as a nucleus for a library, to which additions will be made from time to time.

This purchase will necessitate reincorporation

of the society, because under the present incorporation it cannot legally hold property.

It is planned to introduce club features, serving lunches, for the benefit of the many doctors who have to spend their entire forenoons in the hospitals, and to give physicians a better chance for social intercourse.

Dr. L. H. Herbert of Detroit, has gone to Europe, where he will take Post Graduate work in the University of Vienna.

Dr. A. F. Kingsley of Battle Creek, has returned from two weeks spent at the Mayo Clinic, Rochester, Minn.

Dr. I. L. Polozker of Detroit has gone to Europe for a summer trip. He will study in London and Vienna Hospitals, and will visit Italy and Switzerland. He will be back about Oct. 1st.

Since July 1st, Dr. Arthur J. Jones, formerly of Painesdale, Michigan, has been located at 2299 Gratiot Ave., Detroit, Mich.

Mr. Henry Phipps of New York, has selected the University of Pennsylvania to carry on the work of the Phipps Institute. Mr. Phipps has already acquired ground in Philadelphia on which will be erected a hospital for this purpose. The extent of the benefaction exceeds \$500,000.

The report of the Committee appointed to consider the future policy of the Institute has been approved by Mr. Phipps and the Trustees of the University.

The work will be divided into three general departments, each of which will be presided over by a director. For the directorship of the Laboratory, Dr. Paul Lewis, now of the Rockefeller Institute, has been selected. For directorship of the Sociological Department, Mr. Alexander M. Wilson, of the Boston Association for the Relief and Control of Tuberculosis. Dr. H. R. M. Landis has accepted the appointment as director of the Clinical Department.

Dr. H. D. Purdum of the Northern Michigan Asylum, Traverse City, has moved to Baltimore, Md., where he has accepted the position of chief resident physician at the Bay View Asylum.

Dr. H. R. Varney was reelected Secretary of the Section on Dermatology of the American

Medical Association at St. Louis, and was the only Michigan man so honored—either among section officers, or general officers of the Association.

The Secretary-Editor attended the Annual meeting of the Association of State Secretaries and Editors and was honored with the election as second vice-president. The work of the Association is very similar to that of our own Association of County Secretaries. The main topic of discussion was the question of Medical Defense. There are now fifteen states which have some form of Medical Defense plan in active operation. The most successful being those upon the same general plan as our own. There were representatives of twenty-nine states present at the meeting, which was accompanied by a banquet, a very enjoyable affair given by the American Medical Association.

The Milk Inspectors from the Detroit Board of Health, June 27, for the second time dumped a shipment of milk from Frazer into the gutter. The first shipment consisted of 50 gallons and the second of 110. The regulations require that the temperature of the milk be kept below 50°, but will admit milk up to 60°. That dumped June 27 was 80° and some 81°. Some of the cans leaked and had been patched up with soap. These cans were smashed beyond repair.

The Milk Inspectors of Detroit, June 30, condemned and dumped into the gutter a third shipment of milk, this time 70 gallons, because the temperature was too high, 78°. One can had a leak plugged up with soap, and several were rusty and otherwise unfit for milk containers. This shipment came from the vicinity of Royal Oak and Birmingham.

BOOK NOTICES

Progressive Medicine. A Quarterly Digest edited by H. A. Hare, M. D., and L. F. Appleman, June 1910. Lea & Febiger: Philadelphia and New York.

Volume II of this series of *Progressive Medicine* is well up to the standard of this valuable publication. It contains an article on Hernia, by William B. Coley, Surgery of the Abdomen by Edward M. Clark, Diseases of the Blood, of Metabolism, of the Thyroid Gland and Lymphatic System by Alfred Stengel, and Ophthalmology by Edward Jackson. These authors are all leaders in their departments and have given us the best obtainable.

SURGERY

Conducted by

R. E. BALCH, M. D., Kalamazoo, Mich.

Separation of the Colon from its Mesentery.—In the June number of *Annals of Surgery*, Dr. Frank E. Buntjes gives the results of ten experiments carried out upon dogs, to determine the result of separation of the mesentery from the colon.

EXPERIMENT No. 1.

Male mongrel, weight 135 pounds. Incision through left side of abdomen; large intestine drawn through the wound and about six inches was deprived of its blood supply by cutting between a double row of sutures near the mesenteric border. Care was taken to avoid the large longitudinal blood vessel in the mesentery. The mesentery was then resutured to the intestine as near as possible to its former position.

The dog made an excellent recovery and was killed at the end of the seventh week and an autopsy performed. There were slight adhesions between the small intestine and the wall of the descending colon, and the descending colon where the blood supply had been cut off was slightly constricted. Otherwise normal.

EXPERIMENT No. 2.

Male bull dog, weight 90 pounds. Same technique performed. Was allowed to live fifty days and then was killed by chloroform. Autopsy: The area of the descending colon, the blood supply of which was ligated, was dilated slightly, otherwise normal.

EXPERIMENT No. 3.

Bitch, weight 70 pounds. Same technique. Four and a half inches of the mesentery were separated from the descending colon. The colic artery was not ligated. The mesentery was resutured to the colon with black linen thread. Allowed to live for fifty days and then killed with chloroform. Autopsy: The operated area in this case shows slight constriction.

EXPERIMENT No. 4.

Same technique as before. Four inches of the descending colon separated from its mesentery. The dog is still living and healthy.

EXPERIMENT No. 5.

Male, weight about 20 pounds. Same technique carried out as before, except fully twelve inches of the colon deprived of its mesentery. The dog died on the third day. Autopsy: The entire descending colon which was separated

from its mesentery was black and friable. Necrotic as far down as the rectum.

EXPERIMENT No. 6.

Male 20 pounds. Same technique as before, except that colic artery was accidentally ligated. Death in eighteen hours. Autopsy: No fluid or pus in the peritoneal cavity. The portion of the intestine corresponding to the severed mesentery was greatly dilated and nearly black. Otherwise normal.

EXPERIMENT No. 7.

Technique the same as experiment No. 6, with ligation of the colic artery. Death on the fifth day. Autopsy: Peritoneal cavity filled with thin foul smelling pus. The portion of the descending colon where the mesentery was ligated and resutured was black in color; the sutures had sloughed, and there was an opening in the intestine about half an inch in diameter.

EXPERIMENTS Nos. 8, 9, AND 10.

In these three experiments the same general technique was carried out, but without resuturing of the mesentery to the colon. The colic artery was not ligated. In all three cases, death was the result. Autopsies showing necrosis of the devitalized area.

SUMMARY:

In cases No. 1 to No. 5, in which the colic artery was not injured, and the mesentery resutured to the colon, there were four recoveries and one death.

In cases No. 6 and No. 7, with separation of the mesentery from the colon with resuture, and ligation of the colic artery, both died.

In cases Nos. 8, 9, and 10, separation of the mesentery from the colon without suture, all died.

CONCLUSIONS

Just what length of gut might safely be separated from its mesentery and resutured in the human being, cannot be safely estimated. The greater length of the colon and the larger vessels supplying it in man, make it probable that the average safe length would be somewhat greater than in the dog.

In this connection the author reports a case of strangulated hernia in which he accidentally ligated eight inches of the mesocolon. This was resutured and the patient made an uneventful recovery.

NEUROLOGY AND PSYCHIATRY

Conducted by

GEO. M. KLINE, M. D., Ann Arbor, Michigan

The Syphilis-General Paralysis Question. J. W. Moore, M. D. *Review of Neurology and Psychiatry*, May, 1910.—This much discussed controversy is considered by the author, taking up the principal contentions of the adherents against the syphilis-etiology theory of general paralysis. In about 20 per cent of cases of general paralysis, no history of syphilis can be obtained and no physical signs of the disease are found. He points out that these cases probably had syphilis, when it has been shown that in tertiary and secondary syphilis, 25 to 50 per cent, give no history of primary lesion. Again, it has been established by Muller that general paralysis in adults may result from congenital or inherited syphilis. That the organism of syphilis undergoes a profound change is a reasonable explanation for its non-occurrence in general paralysis. Attention is called to the interesting analogy existing between sleeping sickness and general paralysis. The organisms in both are protozoa; both positive Wassermann reaction in the blood serum; both have early lymph-gland involvement with febrile disturbance and rash, periods of latency, and late involvement of the central nervous system; and in both the histological changes are similar. The spirochetæ are not found in general paralysis, however, while in sleeping sickness the trypanosome is easily demonstrated. The positive Wassermann reaction in general paralysis points to its syphilitic origin.

In a pertinent way the writer considers other contentions—the interval between infection and onset of general paralysis, uselessness of anti-syphilitic therapy in general paralysis, distribution, percentage of syphilitics developing general paralysis, and the specificity of the Wassermann reaction. His conclusions, which leave little doubt regarding general paralysis being of syphilitic origin, are as follows:

1. The weight of evidence is in favor of syphilis as an essential cause of general paralysis, and, if a history of the disease is not obtained, we are probably justified in supposing either that the infection has been so slight as to escape notice, or that it was inherited.

2. Alcohol, trauma and other factors merely play the part of lowering the general resistance, as they do in any disease.

3. Whether the occurrence of general paralysis after syphilis is determined by a constitutional predisposition, by a special form of virus, or

by the incidence of some other factors, is not yet clear.

4. General paralysis must still be regarded as a meta-syphilitic disease rather than true syphilis.

The Reflexes in Hysteria. Philip C. Knapp, A. M., M. D. *The Journal of Nervous and Mental Diseases*, Feb., 1910.—The writer made a study of the more important tendon and cutaneous reflexes in one hundred cases of hysteria, in which there was a difference of sensibility in the two halves of the body. There was some exaggeration of the tendon reflexes in eighty-six cases. A true ankle clonus or absence of the knee-jerk was not found. He is doubtful whether pathological states of the tendon reflex, such as true clonus and loss of knee-jerk, may be caused by hysteria and where found he would question the diagnosis of hysteria. A difference was noted in the knee-jerk and ankle-jerk in fifty-seven cases, thirty-eight being greater on the anæsthetic or paralyzed side and nineteen on the opposite side.

Of the cutaneous reflexes, the plantar reflex was found absent in two cases, and absent or diminished on the anæsthetic side in forty-seven. The Babinski or Oppenheim reflex was not noted in any case. In twenty-four out of fifty-one cases, the abdominal reflex was diminished or lost on the anæsthetic side, in two out of twenty-four the cremasteric was diminished on that side.

Seventy-six cases of the series showed a difference in one or more of the tendon or cutaneous reflexes on the two sides of the body, the skin reflexes being diminished on the anæsthetic side, the tendon reflexes being often increased but sometimes diminished.

The results of the writer seem to contradict the claim of Babinski that "hysteria is incapable of modifying the tendon reflexes and that, consequently, pure hysterical hemiplegia is never accompanied by an exaggeration of those reflexes." Babinski's belief, that only such symptoms as can be reproduced by suggestion and removed by persuasion should be regarded as hysterical, and as the reflexes cannot be influenced in this way, hysteria has, therefore, no effect upon them, is at marked variance with the findings in the writer's series of cases.